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The Journal of the Child-Study Association.

Vol. VIII.—No. I. FEBRUARY, 1915.

Binet's Mental Tests; What they are, and what we can do with them. VII. (*continued*).

By W. H. Winch, M.A.

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All the children of the age of seven who answered incorrectly said six. The results for the "well-situated" school and the "very poor" school were parallel to, but slightly higher than, those of the school just quoted. In former experiments with "money" we also found this to be the case, and the explanation is probably the same as that previously offered.

This test has been placed by me for English children among the seven-year-old group of tests, one year in advance of that for which Binet found it suitable for French children.

Binet's Third Test for Eight-year-old Children deals with the Naming of Colours. Quite rightly, Binet draws a distinction between the *naming* of colours and the *sensation and discrimination* of colours; but he supports his distinction by some psychology which is more than doubtful: "*Le jeune enfant distingue, reconnait et retrouve avec un sûreté admirable les nuances les plus fines et n'a rien à envier à l'adulte sous le rapport du sens chromatique.*"

Thus Binet. Children, he says, see colours as well as adults, and discriminate as finely between them: they do not know the names like we do, that is all. I am afraid this will hardly do. It would not take long for any teacher to show by means of colour-matching with groups of children of different ages that young children do not see as many colours, nor discriminate between colours as finely as adults. I am afraid Binet's position is a remnant of an old philosophical view that "sensationally" the child is not inferior to the adult. Rather has he sometimes been supposed superior: a view which has been implicit in a good deal of Froebelian doctrine.

But this is not the place to discuss all the implications of method founded on alleged but erroneous "fact"; let me get back to the colours. Let us grant that a child may *see* a colour for which it has no name. In this test we are dealing with names principally; though, of course, if a child is colour-blind (a very rare case), he will, even if he knows our colour names, apply them in a way unlike our application of them. We choose, says Binet, those colours that are fundamental, red, blue, green, yellow, omitting those with unfamiliar names, like violet and orange. We might raise some very interesting but rather difficult psychological issues about the word *fundamental*. Which are the primary or fundamental colours? I do not intend to try now to answer the question; I ask it to indicate to teachers that it is still a question.

But our indecision as to the primary colours will not prevent us from using the experiment. Binet tells the experimenter to prepare a piece of cardboard with four coloured papers, red, blue, green and yellow, stuck on it. Each coloured paper should be six centimètres by two centimètres. The child should be asked, "What is this colour?" No error of any kind is accepted for a "pass."

In carrying out this test with English children we used the saturated standard red, blue, green and yellow of the Milton-Bradley series of spectral colours. Each coloured paper measured 2.3 inches by .8 of an inch, and the papers were placed, at

regular distances apart, upon a piece of white cardboard eight inches long by six inches wide.

This is one of Binet's eight-year-old tests, but a most marked difference appears to exist between French and English children, for our children pass the test at five years of age. So great is the difference that I find it hard to accept this test as really an eight-year-old test for French children. Do they not normally, before the age of eight, perceive and name correctly red, blue, green, yellow? I cannot say; I find it hard to believe that they cannot. But my task to-day is rather to analyse what is done by the children in English schools. I cite first the work of the children in the "intermediate" school.

At the age of five years no less than eighty-four per cent. could distinguish and name the four colours correctly. By those who could not name them, blue and green were sometimes called red; red itself was never miscalled. Yellow, as I have shown in other work, is a name acquired rather late; more errors were made with this colour than with the others; it was called "brown" and "pink," but somewhat rarely; the commonest error was to call it "white."

At the age of six years every child named the colours correctly without the slightest hesitation.

At the age of seven years also, every child correctly and readily named each of the four colours.

The results in the "well-placed" school and the "very poor" school were quite as good as in the "intermediate" school. One six-year-old boy in the "very poor" school appeared, on subsequent testing, to be defective in colour sense, though he knew some colour names.

Quite obviously, this test is suitable for five-year-old English children.

BINET'S FOURTH TEST FOR EIGHT-YEAR-OLD CHILDREN is a test in counting backwards. This, as he says, is a test which, to some extent, involves school instruction. He does not mean that children must necessarily have been taught to count backwards; but that they must have learnt to count before they can count backwards. It would not be easy, I think, in a civilized community with compulsory schooling to find children of eight who could not count up to twenty; but to count *backwards from* twenty is another matter. Binet directs us to ask the child to count from twenty to nought, going down or backwards. If the child does not understand we may give him a start, saying, "Count like this: twenty, nineteen." Some French children know that they cannot do this, and do not try; others, though they begin correctly to go backwards, mount up again thus: 20, 19, 18, 17, 19, 20, 21, 22, 23, etc. Others know how they have to count, but cannot reverse the sequences they have learnt. To get 14, for example, after 15, they begin at 1 and mutter quickly up to 15, finding in this way that 14 precedes 15, and hence, in counting backwards, must follow it. But such children can scarcely "pass," since only twenty seconds are allowed for counting. One mistake, and one only, may be allowed.

In carrying out this test with English children, Binet's directions and "pass" standard were rigidly adhered to. Our English results were apparently much better than the French; with us it is definitely a seven-year-old, not an eight-year-old test. As was previously found with certain other exercises presenting numerical aspects, the children of the "well-situated" school were more successful, and those of the "very poor" school were rather better than those of the "intermediate" school. I will analyse the results from the last in some detail.

At five years of age, no child could pass the test; ninety per cent. of them repeated "Twenty, nineteen," after the experimenter, and said nothing more; the rest did not speak at all.

At six years of age, thirty-six per cent. were able to count as directed. Some very good attempts were made by those who "failed"; and indeed most of the children failed "thoughtfully," if I may so express myself. One boy tried back to twenty for each fresh number, thus: 20,

19—20, 18—20, 17. He reached 20, 15 successfully by this method, but then broke down. Another boy counted backwards quite correctly to 13 and then correctly till he reached 12; he then started at one and counted forwards until he once more arrived at 12, and then said eleven. This was a method which Binet found characteristic among French children. A girl counted backwards to 15, and then followed with 51, 52, 53, etc.

At seven years of age, seventy-six per cent. "passed" the test. One boy who failed counted 20, 19, 30, 40, 50, etc. A girl said, 20, 19; and then started at 1 and counted in sequence correctly *up* to 20. All the rest certainly understood what was required of them, and commenced well, but after a few numbers "skipped" too much, though they all got in at the death and ended triumphantly at "One." It will be remembered that the *inversion or omission of one number* does not prevent a child from "passing." Both I myself and those who were working with me, as I have said above, had no hesitation in classifying this as a seven-year-old test so far as English children are concerned.

Binet's Fifth Test for Eight-year-old Children is a test in writing from dictation. At seven years of age, he says, children can copy words, but writing from dictation is much more difficult. His directions for the administration of the test follow: The experimenter is to dictate the following, not word by word, but as one phrase, "*Les jolies petites filles.*" To pass the test the words need not be spelt correctly; but they must be written separately from each other, and they must also be understandable to a person who did not know beforehand what phrase had been dictated. At seven, he says, only a third can write from dictation; but at the age of eight all children can do it. In using this test with English children the French phrase was literally translated into "*The pretty little girls.*" An analysis of the results follows:

At five years of age, no English child attempted to make any mark whatever.

At the age of six, only one child in the intermediate school, and only one in the "very poor" school, passed the test; though twenty-five per cent. of the children of this age were successful in the "well-situated" school. A few children wrote down some letters, which, doubtless, were intended for words, but they were not understandable, except, of course, to those who are specialists in the comprehension of children's unsuccessful attempts. The majority of six-year-old children knew that they could not do it; they wrote the word "The" and no more.

At seven years of age, over seventy per cent. in the "very poor" and "intermediate" schools "passed" the test; in the "well-placed" school the percentage rose to ninety-five.

There were no eight-year-old children in the infants' schools in which these observations were made; but it is quite obvious, if we are to use the test at all under our educational conditions, that it is a seven-year, not an eight-year-old test.

Personally, I have ruled it out altogether as a mental test. It seems to me so very dependent upon school instruction. Some schools "spell" early; others do not. Some schools teach reading by a "phonic" method, others by an "alphabetic" method, others by a "syllabic" method, and children will approach and succeed in the test differently in accordance with their instruction. Moreover, some schools write from dictation as well as in English composition at a much earlier age than others. These considerations induced me to omit the test altogether.

There is one further point in this connection. We can measure one of the component memories involved in this test by means of psychological tests in auditory memory, and the visual components may be easily tested by means of "letter tests." Teachers who wish to pursue this question of the visual and auditory memories of school-children further are referred to Mr. Dell's book, called, I think, *The Gateways of Knowledge,* in which he refers to my methods of estimation. The original articles in scientific journals are not usually accessible.

Binet's Sixth Test for Eight-year-old Children is a comparison of two things from memory. This, says Binet, is a "precious" test, for it does not depend, in any way, upon school instruction, but upon natural good sense. We find out if the child, having called to mind two things, can think of a difference between them, this sense of a difference being, in fact, the most habitual and the easiest result of a comparison. Preparation is made for the test by means of a conversation like the following:—"You know what butterflies are; you have seen some?" "Yes."

"And flies, you know those as well?" "Yes."

"Are they alike, a butterfly and a fly?" "No."

"Why are they not alike?"

These expressions, as he says, do not possess a very elevated style, liguistically, but they have the advantage of being easily understood.

Similar questions are asked about "wood" and "glass," and further questions about "paper" and "cardboard." The experimenter should always begin, he says, by asking the child if he knows the things in question, and if he thinks they are not alike. Then, when the child is asked why he thinks they are not alike, his answer, if he gives one, must be carefully weighed. We are to discard at once, as insufficient, answers which only consist in naming an object. For instance, if the experimenter has asked, "Why are cardboard and paper not alike?" and the child answers "Cardboard," the answer shows that the child does not understand, or cannot give a "difference." A bad answer also, though better than the previous, is "The fly, it is a fly." Very often the difference pointed out is one of size. For example, "The butterfly is bigger, the fly is smaller." (Children would, I think, usually say "big" and "small," not "bigger" and "smaller"). Or some difference in detail is noted, *e.g.*, "The butterfly has very large wings," "The butterfly has white wings," or "It is because the butterflies go on the flowers, and the flies go on the food." Binet's "pass" standard, which I have retained, requires that two out of three comparisons must be made correctly.

It sometimes happens that a child, having found a characteristic difference between the first two things, repeats it for the others. Such answers are not satisfactory, even when they are applicable, which usually they are not. French children take a long time to answer, Binet says; sometimes they take more than a minute for the three comparisons. If they take over two minutes they must be regarded as having failed. At six, a third of the French children can pass the test; at seven, nearly all of them; and at eight, every one can do so.

In carrying out this test with English children, we thought it advisable to choose things for comparison which every child would know, for we felt a little doubtful about "cardboard"; and moreover, Binet gives us no instructions what to do if the child says he does *not* know the thing to which we refer. It might, perhaps, be said that not to know is in itself a mark of low intelligence. The point is arguable; but in any case, there is no test of comparison if the child does not know the terms compared. Finally, we chose "Milk and Water," "Wood and Iron," "A Cow and a Sheep." We had no doubt that the children had had personal experience of milk and water; their school desks were made partly of wood and partly of iron; and though they were London children they had certainly seen cows in "dairies" and sheep in the streets.

We did not go through the introductory conversation which Binet recommends; its *raison d'être* had largely disappeared. Moreover, any increase of length in a relatively non-essential part of a test (or even of a lesson) is always a disadvantage. So we went directly to the point by asking, "What is the difference between milk and water?" and, having written down the child's answer, asked, "What is the difference between "wood and iron"? again writing down the child's answer. The third and last question, "What is

the difference between a cow and a sheep?" was dealt with in the same way.

The following is an analysis of the answers given by English children :—

At five years of age, only eight per cent. of the children in the "intermediate" school gave two satisfactory differences out of three; sixteen per cent. made good attempts; twenty-four per cent. just repeated the words "milk," "cow," etc.; and over fifty per cent. gave no answers of any kind. But answers which "fail" are often more interesting and instructive than those which "pass"; so in quoting from the children's answers I include some "bad" answers as well as "good" ones.

(*a*) Differences between milk and water :—1. Milk is white and water is grey. 2. Milk is heavy and water is light. 3. Milk is white and water is white. 4. Milk is sweet. 5. Milk looks like white. 6. Milk is white and water is white and all.

Answer 1 should, I think, be accepted; the children at this age seem prone to give colour differences, but fail in the verbal expression of the difference. Of course, we cannot "pass" a child who fails to express a difference; but the word "grey" does, in a way, appear to express it. In answers 3 and 6 it might appear, superficially, as if the child were citing resemblances, but personally, I think, they are failing verbally to express sensed differences. Answers 4 and 5 are obviously incomplete, only one term of a comparison being given. Answer 2 may be a lucky shot; but if it is correct it should be accepted.

(*b*) Differences between wood and iron :—1. Iron is heavy and wood is light. 2. Iron is black and wood is white. 3. Because iron is harder than wood. 4. Iron is too hard to break and wood breaks easily. 5. Wood will break and iron won't. 6. Wood is brown and iron is brown. All these answers should be accepted except the last. I do not think the child set out to find the similarity in colour between "wood" and "iron," but rather failed to find another word than "brown" for the colour of "iron" when it reached that part of the compound sentence, which it originally meant to be antithetical.

These answers are those of five-year-old children; but let it be quite understood that they are not "normal" five-year-old children. It would be as absurd to judge of the usual intelligence of five-year-old children attending municipal schools from these answers as to estimate, say, the "drawing" of a class by means of selected specimens of good work.

The psychologically minded teacher is probably using these citations in another way. He is noting how often "colour," and how often "weight," and how often "hardness" appear as a basis of difference.

In the "very poor" school, there were one or two answers worth noting. A little boy of five said, "You can get splinters off wood and you can't off iron," and a little girl said, "There is music in iron, and there isn't in wood."

(*c*) Differences between a cow and a sheep :—1. A cow is bigger and a sheep's little. 2. Because a cow gives you milk and a sheep don't. 3. A cow is white and a sheep's black. 4. A cow is brown and a sheep's white. 5. A cow is yellow and sheep's blue.

It is psychologically interesting that these able five-year-old children are finding their differences very largely on a basis of colour. In marking the answers, we can, of course, allow a cow to be called "white," "brown," or "yellow." But we can hardly admit sheep as "blue," nor, indeed, as "black," though sheep traversing London streets are usually dirty, to say the least.

At the age of six years an enormous improvement was shown. Fifty per cent. of the children in the "very poor" school gave two or more satisfactory differences, sixty-eight per cent. of the children in the "intermediate" school, and no less than ninety-five per cent. in the school more favourably situated.

The following are examples of the answers given, some of them, of course, more than once :

(*a*) Differences between milk and water : 1. Milk has a white colour and water has no

colour. 2. Milk is white and water is no colour. 3. Water has no colour and milk's white. 4. Water ain't got no colour and milk is white. 5. Milk is white and water ain't. 6 Milk is white and water isn't. 7. Water isn't sweet and milk is. 8. Milk is yellow and water is no colour. 9. Milk is nice to drink, and water isn't, because milk has cream on it. 10. Water has no taste and milk is sweet. 11. You can see through water and you can't see through milk.

I have given no unacceptable answers in the above list. We may again note how frequently colour is taken as a basis of difference. In the "very poor" school there were two unusual answers :—1. Milk looks like paint and water does not. 2. Milk goes in your tea, and water in the poultices.

(*b*) Differences between iron and wood : —1. Iron can't burn and wood can. 2. Wood will break and iron won't. 3. Wood will burn in the fire and iron won't. 4. Iron is very hard and wood you can chop. 5. Iron is hard and wood is soft a bit. 6. Iron is what you can't break, and wood is what you can chop. 7. You can easily saw up wood and you can't iron. 8. Iron is strongest. 9. Iron is black and wood is white. 10. Wood is white and iron is rusty. 11. Iron is black and the wood is brown. 12. Iron is harder than wood. 13. Sometimes wood is not very strong and iron is ever so strong. 14. Iron is heavy and wood is light. 15. You can chop wood and you have to put iron in the fire and make it red hot, and then it will break. 16. You can light the fire with wood and you can't with iron.

On the basis of what may reasonably be expected within the experience of a young child, all the answers given above may be accepted. Two answers from six-year-old children in the "very poor" school are rather unusual :—1. You can get splinters off wood, and you can't off iron. 2. Wood to light the fire, iron to make nails.

(*c*) Differences between a cow and a sheep :—1. A cow gives you milk and a sheep doesn't, and a sheep is gentle and a cow throws you up in the air with his horns. 2. A cow has got horns and a sheep has got wool. 3. A sheep has got a lot of wool on it and a cow's got skin. 4. A sheep has got wool on it and a cow has got leather. 5. A sheep has wool and a cow has horns and skin. 6. A cow's got horns, and milk comes out; a sheep's got wool. 7. A sheep's got white wool and a cow's got skin. 8. We get milk from the cow and wool from the sheep. 9. The cow will toss you up and the sheep won't. 10. A sheep has wool and a cow hasn't. 11. A cow you get milk out of and a sheep you can't get milk out of. 12. Milk comes out of a cow and it doesn't out of a sheep. 13. A sheep's got wool on its back and a cow's got skin. 14. A cow is bigger than a sheep. 15. A sheep's got wool and a cow's got hair. 16. A sheep's got wool on him, and the cow you have some milk out of him. 17. A sheep goes baa and a cow doesn't.

The answers of the children were given so readily that there was usually no question of exceeding the time limit. In one case, however, a six-year-old child did exceed the time limit with only one answer given, and that not an acceptable one, namely, "Wood is what you light the fire with."

Twenty per cent. said the words "milk," "wood," "sheep," and got no further; twelve per cent. gave no answer of any kind. It is interesting and valuable to note the changed characteristic of the differences which appeal to the six-year-old children as compared with those of five. Colour is no longer the great basis of distinction; the differences now are mostly concerned with wool and milk, skin and horns. Only one or two answers from the "very poor" school call for notice, namely, "A cow has a longer tail than a sheep, and there's hairs stuck in a cow and wool in a sheep" : "hairs stuck in" is delicious.

Two gave answers like, "Wood is wood and iron is iron." To the philosophically minded, this may seem an illustration showing great acumen, faintly adumbrating, in a particular case, the great metaphysical principle of identity, expressed generally as A is A. But I fear it was not so; they were both very stupid children,

the mistress said, and came from homes of a very low type.

At the age of seven there was a general advance, but it was scarcely so great as I should have expected. The advance seemed rather in the capacity of all the children to say something satisfactory, than in any change of the type of the best responses. But let the answers given speak for themselves. I shall cite some unacceptable as well as some acceptable ones.

(*a*) Differences between milk and water :—1. Milk is white and water is no colour. This reply, phrased precisely in this form, was given by no less than twenty-eight per cent. of these seven-year-old children, and, as will be seen from the subjoined answers, there were many other answers in which the same basis of difference was cited.

2. Milk is white and water is not. 3. Milk will make a cake nicer than water, and water is colder than milk, and milk is creamy and water is no colour. 4. Milk is white and comes from the cow, and water comes from the river. 5. Milk is white and water is dark. 6. Milk is sweeter than water. 7. Milk is quite white and water is a grey colour. A discriminating experience of London milk is shown in the next answer, number 8 : Sometimes milk is creamy and water is not. 9. Because milk has got a colour and water ain't. 10. Milk is yellow and water is no colour. 11. Water hasn't got any taste and milk has. 12. You can't get milk out of a water-tap, and you've got to have a milkman to give you milk, and milk is a kind of yellow, and water is no colour. Number 12 is a good answer, though not showing a complete equipment for all kinds of modern business.

The remaining answers are not acceptable for the purposes of this test. Instances follow :—13. Milk is better than water. 14. You put hot water in milk. 15. Milk is white and water is white as well. 16. Milk is a nice taste and water is cold. 17. Water is cold and milk is middling colour.

(*b*) Differences between wood and iron :—1. You can't break iron and you can break wood. 2. Iron won't burn and wood will. 3. Wood comes from a tree and you get iron out of the ground. 4. We can burn wood, but we can't burnt iron. 5. Iron is heavy and wood is light. 6. Iron is black, and wood is a little bit black and a little bit white. 7. Iron is rusty and wood ain't rusty, and iron is heavier than wood. 8. Iron won't break and wood will. 9. You can't burn iron and you can burn wood. 10. Iron is harder than wood, and it's black and the wood is white. 11. You iron clothes with the iron, and you burn the wood in the fire. This answer does not show any comprehension of iron as a substance, nor possibly, of wood as a substance ; it should not be regarded as satisfactory. 12. Iron is harder than wood. 13. Iron is hard and cold, and wood is hard and has got splinters. 14. Iron is black and wood is brown. 15. Wood will light the fire and iron won't.

(*c*) Differences between a cow and a sheep :—1. A cow has horns and a sheep has not. 2. A cow gives us milk and a sheep doesn't. 3. A cow is bigger than a sheep, and it has horns and a sheep hasn't, a cow has a long tail and a sheep has a short one. It is, of course, very probable that these town children believe sheep to be *born with short tails*. 4. A lamb is little and a cow is big. 5. A sheep has wool and a cow has horns. 6. A cow gives us milk and feeds on grass, and has horns, and the sheep gives us wool. 7. A sheep is little and a cow is bigger and has got horns. 8. A cow is bigger than a sheep. 9. The sheep is smaller than a cow. 10. A cow walks along the road and a sheep comes behind him. This answer, though it may actually have described an experience of the child with a cow and a sheep, is not general enough to be acceptable. 11. We have milk from the cow, and we don't have any from the sheep. 12. A cow's got horns and a sheep hasn't, and a cow gives you milk and a sheep doesn't. 13. A cow is big and a sheep is small. 14. A cow gives you milk and a sheep gives you wool.

15. A cow is different from a sheep because it runs different. This is probably an

answer resulting from personal observation; it should, I think, be accepted, though there is no actual specification of the difference in running. 16. A cow is the best because we can get milk from it, but a sheep is just as good because we can eat it. Verbally the child has asserted no difference: he says one is as good as another; but he has stated a difference whilst asserting their equality, so I should accept his answer as satisfactory. 17. A cow is big and a sheep is little. 18. A cow hasn't got any wool on it, only a skin, and the sheep has. 19. A cow is stronger than a sheep, and a cow gives you milk and a sheep don't. The seven-year-old children answered so readily that the time limit became a matter of indifference when assessing their work.

Any one who reads these answers, and still more, any one who sits hour after hour, and hears these children, one by one, say the same thing over and over again, is tempted to remark, "Oh, yes, the children are just repeating what they have been taught in school." But they are not. Two considerations weigh heavily on the other side. The head mistresses asserted that no such lessons had been given. And there is a second consideration: the phrasing of their answers would have been much more alike had they been taught. The similarities are essential, not verbal. On the whole, I think this is a seven-year-old test for English children, not an eight-year-old test, as for the French, since about eighty per cent. of our seven-year-old English children may be expected to "pass."

There is a comment of Binet's own, concluding his account of his eight-year tests, which deserves our attention. It is difficult, he says, to distinguish the intellectual levels of seven and eight years; that is why he has used some tests of instruction, though he would not have used them had they not also been tests of intelligence. I have discussed this question in connection with the particular tests; but, perhaps, one word more on such an important issue may be pardoned. To receive and retain instruction is undoubtedly a "test" of intelligence; the difficulty, at least in English schools, is that instruction, both in amount and in effectiveness, varies so much from school to school that, by using pedagogical tests, we may be classifying a child wrongly, not because of himself, but because of his school.

This is as true for "scholarship" children as for children in "special" schools and "backward" classes. French syllabuses are uniform and ours are not; but I can hardly believe that French teachers are so much alike that the difficulty which we feel does not exist in France also.

The next article will deal with Binet's tests for nine-year-old children.

Mental Tests.

By Cyril Burt, M.A.

The fundamental purpose of the present paper is to urge the claims of research. Progress depends upon investigation quite as much as upon reform. Before we can presume to help, we need to know. These are truisms which we have come but slowly to acknowledge. In no field of social work are they more valid than in the study of the problems of childhood; and no field is at once so rich in material, so little explored, and so closely related to the welfare of the community and the progress of the race.

To be of real utility every fresh experiment in educational method should be preceded by a scientific study of the difficulties it is to solve, and accompanied by a careful observation and an impartial record of its effects. This we have at last begun to recognise. But we do not, I think, yet realise the extensive co-operation which such studies, such observations, and such records entail. In the first place, the study of a single group of children is in itself of little value. We must study children of various ages, of different sexes, of various types, from different localities, in varying economic circumstances, and under different teaching conditions. And all these studies must be made upon lines which shall render them comparable one with another.

In the second place, the study of a single aspect is also insufficient. The physical, the mental, the economic, the social, the educational, and the pathological aspects of every problem and, if possible, of every child must be watched throughout the research. And, to be studied properly, each aspect needs the attention of an expert.

Hence, before they can be fruitful, scientific studies of childhood must embrace a number of different groups and must engage the assistance of a number of different experts. In child-study, as in no other branch of science, an essential condition of progress is co-operation. Spread as it is throughout the United Kingdom, including as it does representatives of many different sciences, education, medicine, psychology, sociology, an organisation like the Child-Study Association is pre-eminently fitted to undertake such co-operative research.

In such an enterprise there will, of course, be numerous pitfalls. It would be unwise to press those who are conscious neither of a scientific training nor of a scientific interest to embark upon the collection of pedological data. The fact that children are accessible and attractive to us does not in itself qualify us to answer concrete questions as to the nature of their mental processes. But by now there must be among our members a large number who have undergone a thorough training in a psychological laboratory, or (what is almost as valuable) combine a good scientific or mathematical training with a desire to apply a mathematical and scientific standpoint to the children in their charge. These need but a little direction from a small organising committee to acquire reliable data upon an extensive and yet uniform scale, or to put to the test of practice the suggestions, often academic and sometimes unpractical, of the pure psychologist. Even the non-scientific, the non-mathematical, and the non-psychological may be of great assistance. For, in dealing with children more than anywhere, we need the point of view of the lay critic as a check and as a corrective.

May I then make these assumptions? First, that child-study calls for research; secondly, that such research calls for co-operation; thirdly, that such co-operative research calls for the help of members of our society. It remains for me to show in a concrete way that such an aim is feasible. It will, I think, prove feasible, if at the outset we concern ourselves with methods rather than with problems. The investigation of problems pre-supposes a standardisation of methods. Before we can determine the natural course of mental development in the child, before we can evaluate schemes for teaching the various subjects of the school curriculum, before we can investigate the influence of new conditions (free discipline or open-air classes) upon general mental ability, before we can discover the effect of insufficient food or insufficient sleep upon subjects of especial difficulty, like arithmetic or reading, before we can attack any specific problem in practical child psychology, we need a set of methods for measuring the abilities concerned; we need, in short, a standard system of mental tests.

To perform the work that we shall later require of them, such tests must be adapted to a variety of conditions, and must already have furnished us with a set of normal performances for normal children. Hence, from the very outset co-operation is needed. For it is clearly beyond the power of one or two individuals to elaborate tests which shall be applicable to a variety of conditions of which they themselves have had no experience.

I will endeavour to illustrate my suggestions by describing one or two schemes of tests, some new and some old.

The mental capacity, which it has been most commonly desired to measure, is that known as intelligence or general ability. The most famous scheme of tests devised for this purpose is the Binet-Simon scale. By personal experiments upon one or two small groups of children, Binet and Simon endeavoured to discover sets of four or five tasks which should be characteristic of each year of mental development. According to their results, most normal children of the Parisian

working classes could, at the age of four, name common objects, such as a key or penny, repeat three figures from memory, and give their sex correctly. At the age of six they could give their age correctly, repeat sentences of sixteen syllables, and describe the use of common objects. At nine they could repeat the days of the week; at ten, the months of the year; at twelve, seven figures or twenty-six syllables.

In this way Binet and Simon proposed to describe the normal course of mental development, and to determine the stage which any child ought to have reached and compare it with the stage which he actually had reached. They drew up a list of tests, assigning five to each year. For the most part the tests consisted of simple questions, such as: "What is your name?" "Are you a little boy or a little girl?" "How old are you?" "What day of the week is it?" "What is a table, a horse, a mother?" "What would you do if the house were on fire, or if you were planning an important business?" The answers to these questions were to be classed as right or wrong. And from the number and nature of the tests successfully passed, the child's intelligence was computed and expressed as so many mental years.

In this country the Binet tests have recently aroused considerable interest owing to recent legislation dealing with the mentally deficient. It would, however, be a great mistake if we followed the lead of workers of other countries, and treated this scale as a finished instrument, ready for application to British children without further modification or re-standardisation. The scale, or rather the series of scales, attempted by Binet were all avowedly tentative and incomplete. He was still revising them when he died. And it was his ardent wish that societies such as our own should do what he alone naturally could never do, namely, try the tests upon a large scale, and so perfect the selection of tests, the procedure to be followed, and the assignment of appropriate ages.

Here, then, is a problem with which we might well commence. What are the normal performances of British children at various ages, and how can they best be tested? We might begin with the tests used by Binet with Parisian children. Instructions for using these in a way which would yield comparable results with different observers might be drawn up; and the tests might then be applied in three or four large schools in the town, in the country, among the lower classes, and among the better classes, each containing about a hundred children at every age.

There is little doubt that we should at once be able to remedy serious defects in the tests as at present used. At present, those who use the tests are necessarily ignorant as to how far the normal attainments of an English child differ from those of the French children tested by Binet and Simon. For the most part, they have to presuppose that because Parisian children could not name the primary colours till the age of seven or eight, therefore English children could not; or again, because Parisian children, aged nine, could give sixteen sous change out of one franc for a four sous article, it has been assumed that American children of the same age could give twenty-one cents change out of a quarter for a four cents article, or that English children of the same age could give eightpence change out of a shilling for a fourpenny article. It is obvious that these inferences are quite unfounded. The same applies in a greater or a less degree to the other tests. Hence, the whole scale must be re-arranged and re-standardised for children of this country, and indeed for children of different parts of the country and different strata of society, before they can reliably be used.

Probably our investigations would result in modifications yet more drastic still. To the layman it must seem obvious that some of the tasks are better tests of intelligence than others. Few who are not psychologists could say how precisely it measures intelligence to repeat the date or the days of the week: while most of us will probably agree that in any case it is a far better test of intelligence to be re-

quired to define four or five concrete and familiar terms. Such impressions, of course, are all but valueless. We need a complete set of correlations between each of the tests proposed and an independent and reliable estimate of intelligence. In this country, we have been able to measure the reliability and significance of certain tests in this way. But there has been no extensive comparison made between the English tests and the French tests from this point of view.

The following results obtained upon a small scale will illustrate the kind of investigation which needs to be attempted with numerous sets of tests and with larger groups of children. All the children in a special school were tested with the four following Binet tests :— copying a rhombus, copying a square, copying a phrase in script, and writing a phrase from dictation. The correlations between excellence in these tests and superiority in intelligence were found to vary considerably. They were respectively, .45, .50, .61, .74. Thus, copying a rhombus gave but a poor indication of a child's intelligence; whereas writing a phrase from dictation would give a fairly good indication, provided the children had all been taught in the same school. The correlation between the children's average excellence in these four Binet tests and intelligence is .61.

The same children were also tested by four simple experimental tests. These tests were devised upon lines similar to those used by previous English investigators. In these tests the measure consisted, not in the sum of successes achieved in a few different tests in which the only other mark obtainable was failure, but in the number of similar reactions made within a limited time. In the Binet tests the examiner decides that a given child's drawing is or is not like a square, and passes or fails him accordingly. In the English tests, the child is required (for example) to cross out as many O's, S's, and X's as he can in two and a half minutes from a page of pied printed; and the examiner has merely to count the number of correct erasures. It is clear that this method leaves far less to chance or personal caprice. Accordingly, we find that the reliability co-efficient (which measures the self-consistency of the estimates yielded on successive occasions by the same test) is about .8 in the case of the English tests and only about .6 in the case of the French tests. Further, the correlation of the four tests with intelligence now rises to .81.

It is plain, then, that there is room for considerable investigation before we can produce a satisfactory scheme of intelligence tests.

The tests, however, would be of little use without a knowledge of the performances normally attained in their execution. We need standards or norms from children of different sexes, ages, types and localities. We must have not only averages, but also standard deviations, or some similar measure of the limits of normal variation. This will constitute a third line of research.

So far we have considered tests simply of general mental ability. But each of these three lines of work can be applied to other characteristics. For all we need is, first, to re-test old and pre-existing tests; secondly, on the basis of these to work out new and more reliable tests; and thirdly, to obtain standards and norms for various types of children.

For instance, besides inborn general ability we might test acquired general knowledge. With help from teachers of various subjects, a simple test might be framed upon the following lines :—Draw up a list of carefully selected words representing the chief of the commoner branches of knowledge: for instance, appendicitis, butterwort, clerestory, deuce, footlights, and so forth. Let the persons to be tested mark with appropriate symbols the words they can explain, the words they cannot explain but vaguely understand, and the words they have never heard of before. Let them also give samples of the way they would explain the words in the first class, or the way they would use the words in the second, in order

that the examiner may estimate the subject's standard of ability to explain or understand. From such data a fairly comparable index of general knowledge can be computed for each examinee. A suitable list of words has already been constructed for adults; and one or two surveys upon American students have been carried out by its means. For children, however, nothing as yet exists which can form the basis of a satisfactory test.

Along similar lines vocabulary tests have been drawn up. One suitable for children is urgently needed. The principle is to take a suitable dictionary of the mother tongue; select, say, every thousandth word; require the persons tested to give the meaning of the words in the list thus compiled; and multiply the number of correct answers by one thousand. This is assumed to give approximately the size of the vocabulary of the examinee.

Tests and norms of more specific branches of knowledge need also to be determined. The school examination, the attainments expected of the various standards form rough methods of meeting these needs. But both are far from accurate or scientific. Considerable attention has recently been paid to the subject of scholastic examinations; and it has been shown that, at present, both the way in which the questions are selected and arranged, and the way in which the marks are assigned and added, violate definite psychological and statistical principles. With a little co-operative research it ought to be easy to draw up a few alternative sets of standard papers for the chief subjects of the school curriculum, and to lay down precise instructions as to the proper procedure in setting and marking them. Once such a compilation had been made we could proceed at once to attack a large variety of urgent educational problems.

Specific abilities, like attention, memory, fatiguability, call for special tests quite as much as specific knowledge. But their measurement has reached a more advanced stage; and for the present will probably remain a more technical affair.

So far I have dealt mainly with the intellectual side of the child's mental life. Work, such as that of Freud and his school, is demonstrating to us that the moral or emotional side is even more important. The investigations of this school have provided us with one emotional test of great value. This is the associative reaction test. In this experiment a list of words, for the most part designed to strike emotional complexes, are presented to the subject. He responds to each by uttering the first word that it suggests. The nature of these replies, together with other symptoms manifested in the course of the experiment, is found to throw light upon the person's emotional tendencies and experiences.

This test might well be adapted for use with children. We need, first of all, a suitable list of stimulus words. This could best be formed by selecting the most useful words from a number of lists compiled and tested independently by a variety of investigators. Secondly, we need a table of all the common replies to the words with their approximate frequency. This could only be obtained by using the list with, say, a thousand normal children; and counting the frequency with which the various replies recurred. Thirdly, we need to know the significance of the unusual or exceptional replies. This could only be discovered by following up the individuals who actually gave them. The emotional significance of children's dreams, of their little lapses and habits, of the ideals selected from time to time, of their criticisms of moral stories, of their responses to ethical questions—this, too, might well be determined by the collection of objective records upon an extensive scale.

I will refer to but one other group of tests. These I will term vocational tests. Only with the aid of special tests could employees be placed at once at the work for which they are most fitted. In America, under the impulse of the new movement for scientific management in business, experiments have been made in this direction. By means of an ingenious series of researches upon motor drivers,

telegraph girls, hands in a cycle factory, Professor Munsterberg has attempted to devise a scheme of tests which will eliminate at the very outset all those who are not suitable for the work required in these positions.

The best instance of such tests in our own country are the Board of Trade tests for colour-blindness used for examining those who apply for work as engine-drivers or mariners. One well-known firm of cocoa manufacturers employs an elaborate scheme for determining the fitness of its employees. They submit the applicants first to a medical, then to an educational examination, and finally require a report on their moral character from their teacher. We may suspect that the latter more often resembles a testimonial than a scientific report; while it is striking that the former includes tests neither of general ability or intelligence, nor yet of special aptitude for the processes undertaken in the factory. The new hands, however, are given a sort of apprenticeship, which includes attendance at classes for instruction upon the various kinds of work they may be required to perform; and in the course of these lessons the candidates are selected for positions for which they seem most fitted. This forms an extremely interesting experiment. Further experience will no doubt enable the instructors to pick out almost at the very beginning the type of person suited for definite types of work.

To my mind, however, it is in the school rather than in the factory that these decisions should, as a rule, be made. But a satisfactory scheme for determining and formulating the aptitudes and disabilities of pupils can, as a rule, be elaborated by the co-operation, not merely of teachers, but also of persons in touch with industrial life. In one or two cases a beginning might be made without this help. It might, for instance, prove comparatively easy to analyse the qualities required in a good dressmaker into a number of more fundamental characteristics, and devise simple tests, or, at any rate, simple methods of measuring these characteristics; and a similar analysis might be attempted in the case of the industrial subjects taught in industrial and trades schools.

These are a few of the lines which co-operative research upon the subject of mental tests might well follow. Our ultimate aim should be what I will term a psychographic scheme. By this I mean a formulated system of points for observation, together with instructions for making comparable records or carrying out reliable tests, which should enable any competent persons to draw up a reliable inventory of the mental characteristics of any given child, whether normal or abnormal. Once our society had such a scheme at its command, its members could collect studies, which should be something more than a record of personal impressions or convictions, something more than an interesting anecdotal biography, mingling indistinguishably observed fact with explanatory hypothesis, studies which should provide a store of material collected in a uniform and reliable fashion, and expressed in definite, scientific terms and measurements. Such a scheme would, I think, advance child-study in a way which at the present moment we can scarcely conceive.

Further Education.

By Mary E. Crees.

A Report on the Conference at Letchworth, August, 1914, made to the Council of the C.S.A.

Very early in the sessions it was clear that the feeling of the Conference was for a compulsory system of education after school age. The speakers condemned the terrible wastage now going on through the incompleteness of our present system. The best was done for the child until the age of fourteen, and then education was suspended and the fine material, brought just to the point where it might be of service, was, as one of the speakers put it, "thrown upon the scrap-heap."

Any further education of our boys and girls after they leave school depends upon their own free will, and upon the slender basis of good will on the part of their em-

ployers—a very slender basis as the experience of the past has shown. It is true that many employers feel that it is vital to the nation that their young people should continue their education, and conscientiously make it possible for them to do so. But they are handicapped by unsympathetic employers. If all employers were compelled to allow their workers to attend classes the problem of further education would be nearer solution. Until this is done and compulsion replaces voluntary attendance at technical and trade schools the efforts of educationists will never be successful, and further education will still be out of reach for the majority of our young people.

An interesting paper on this point was read by Mr. J. Clark, of the Glasgow School Board. Scotland has an Act of Parliament which makes legal the principle of compulsion and gives School Boards the power to compel young people to attend Continuation Classes, the compulsion being equally obligatory upon employers. Very little advantage has been taken of the Act by Scottish School Boards. Only a few Boards and only one large Board, that of Glasgow, have availed themselves of these compulsory powers. It is evident that the average employer does not feel called upon to help his young workers to continue their education.

A hopeful instance, however, was given of what can be done under even such a system of semi-compulsion. In Edinburgh a personal canvass of employers is made and meetings are held in workshops; the opening session of the Continuation Classes is announced in all the churches; newspapers give columns to the subject. Every effort is made to impress parents and employers with the importance of the boys and girls going on with their education after they leave school. The result is that attendance at the Edinburgh Continuation Classes is seventy per cent.

This excellent result appears to be a strong point on the side of voluntary effort. But does it not rather emphasise the utter hap-hazardness of a system that leaves people free to do as they like in a matter vitally affecting the well-being of the nation?

Any system of compulsory education after school age must necessarily secure a reduction in the hours of labour for young people, and facilities for attending classes—in the day instead of in the evening, after an exhausting day's work. The withdrawal of children of fifteen or sixteen from the industrial life of the State for an afternoon a week may seem impracticable, but it must come. One speaker summed up the whole question by saying: "As regards the entire training and education of the young people of this country, we require a sound and consistent policy on the broadest lines, and that policy has not yet been formulated."

In the discussion on vocational and non-vocational education the Secondary School with its semi-vocational aim was contrasted in usefulness with the separate course Commercial School and the separate Trade School. It was contended that these latter had an advantage over the elective commercial course of the ordinary Secondary School on account of the improved *personnel* of the teaching staff. The head of the Commercial School or of the Trade School is usually an enthusiastic teacher who does not believe that the teaching of any subject, however technical, is necessarily merely vocational; but he believes in, and teaches in the spirit of the larger idea of the Secondary School. Such a teacher gives to technical training a truly educational value.

The difficulties that have to be met in our present Continuation Classes are: (1) the difficulty of getting classes together and the lack of public co-operation; (2) the great difficulty of keeping up attendances; (3) the large classes and consequent difficult discipline and poor intellectual results. "The vital difficulty, however, lies in the character of the newly emancipated adolescent himself, which necessitates the most tactful handling." Hence the absolute need of trained and able teachers, teachers who are free from the rigid elementary method and are prepared to carry on their work on broad lines.

Although so much has been attempted in education, we are hardly yet beginning to meet the need. The Army Report for 1914 shows that out of 2,709 recruits seventy per cent. were at or below Standard III. This is a measure of the wastage through neglect during the period between school and enlistment. In connection with this another startling fact was given. It was stated that 33,000 pupils leave the London elementary schools every year. Of these only three per cent. of the boys and two per cent. of the girls go into definite training in Trade Schools; that is, only a small number have the chance of efficient training in the calling they may wish to gain their living by. The case of the girl leaving school is, on the whole, much worse than that of the boy. In view of the economic stress that is coming upon us, the need for women to fill men's places in factory and workshop, it seems plain that education authorities should at once take up the responsibility of turning the half-trained school girl into the capable workwoman.

In the discussion on how the Elementary School can better prepare the child for his future career, it was suggested that the elementary course should end at ten; all the children then passing into a Secondary School, attendance at which should be compulsory until the age of fifteen. For the first year or eighteen months in the Secondary School the child should be under teaching to find out, if possible, what he was fitted for; his further teaching in the school to be given to fit him for that. This very revolutionary suggestion, if adopted, would entirely alter our present school system, and it is doubtful if many children of ten to eleven or twelve years of age show tendencies that will enable a teacher to fix his probable vocation.

It was felt, however, that preparation for the child's future career should begin at an early age. To make this possible responsible teachers must have liberty to draw up their own curriculum. Further, that the teachers may be better prepared for this work there must be a fuller co-operation between schools and training colleges: the theoretical work of the colleges should go hand in hand with the work of the schools.

There is not space in this short report to say much about the discussion on village schools, deeply interesting as it was. The need for further education is no less urgent for the youth of the countryside than for their brothers and sisters of the town. "All too often, for want of anything of stimulus from intellect or imagination, the bright, promising lad of the village school becomes in his later teens and early manhood a dull, listless and subservient hand, instead of an intelligent, live personality."

Although much of the time of the Conference was given to considering how best to secure for our young working people the training that will make them capable wage-earners, there was expressed by every speaker the deepest desire that life's best things should be put within their reach.

The whole purpose and meaning of the Conference was gathered up in Canon Masterman's address: The boy citizen and the girl citizen of the future should be taught together. Their training should include a course of civics, and a certificate that such a course had been taken should be a necessary qualification for enrolment in the list of voters. He dreamed of a day when such teaching of civics should be in the life of the State what the Confirmation class is in the life of the Church. It is not too much to look forward to the school age being extended to fifteen, and then to the boy and girl attending classes for two years one afternoon a week, one of these years to be given to the teaching of citizenship.

Here again came the question, "How is it to be done?" First, the teacher must be found. "Patriotism is the outcome of imagination, and imagination is knowledge interpreted by affection. If the course of study provides knowledge it must be the function of the teacher to awaken affection. If the teacher loves his country he will soon make the children love it too. But to do that our country must be something

more than an abstraction. We must recognise that she exists to keep alive in the world a certain ideal of ordered liberty and common responsibility."

So the aim of education is not to make our young people capable wage-earners, not even to make them understand through culture the beauty and the charm of life, but to make them men and women capable of love, of duty, of self-sacrifice—citizens in the truest and highest sense.

Parent Educators.

By Professor Bidart.

Translated by Miss M. S. Ryan, B.A.

The moment for reproof being well chosen, the next question is, What tone shall I adopt? If I speak in a rough and brutal tone I shall make the child tremble; but will his trembling help him clearly to see the wrong and to repair it? It will only cause him to lose his strength and his spirit, both of which he needs so much in order to understand what is to be done and how to do it. While doing everything to avoid a frightening tone, I shall no longer affect an air of indifference, for it is not indifferent to me whether or not he obeys me, and he ought to know that his bad conduct causes me to suffer. The tone therefore ought to be *calm and saddened.*

There are some people who only know how to praise a child while believing they are blaming him. "Oh!" such a one will say to you; "*He is a little devil! He is terrible!*" These words are uttered, apparently, in a tone of reproach, but really, they are secretly approving. The culprit is not deceived. He sees very well your look of admiration, your barely concealed smile. He knows instinctively that, in your heart, you admire his little tricks, and so he will promptly begin again, almost persuading himself that he is doing right. There is no middle course; you must either reprimand him seriously or not at all.

In a word, in order that the blame may not be harmful and may do real good, I have only two things to do: *choose a suitable opportunity and speak to him in the right way.*

There are certain cases and also certain temperaments in dealing with which blame is not sufficient, the offender would get off too easily. He must sometimes be made to feel that he will gain nothing by behaving badly. Does that mean that I, who have resolved not to proceed to extreme measures, am to find myself without any further resource? I have been delighted to find in Mme. Campan's work an idea which suggested to me a plan of action: "Depriving a child of some material pleasure makes him long for it more eagerly, but depriving him of esteem makes him realise its value." This maxim is fruitful in results. Instead of sending a child to bed, supperless, I shall give him his meal as usual in the same room with me *but not at table with me.* It is permissible to give a child only dry bread and water; he has what is necessary for sustenance, and he is punished.

Or shall I send him out of the room for a few minutes and shut the door on him, having said to him, "*You don't deserve to be in the room with us*"? Or, suppose some little excursion is to be made with some friend or relation, he will be allowed to go because exercise is necessary for health, but he will not be allowed to walk with the guest in question because that would flatter his self-esteem. In a word, without inflicting any positive humiliation, *depriving him of an honour* will have a good effect.

A still better way is to appeal to a child's filial affection. My custom is to give him a kiss at certain times of the day. Now, when he comes forward as usual, I say to him, "*You don't deserve it.*" This is a deprivation to which a child is very sensitive, and he will make great efforts to deserve the kiss again. It is better to try to deserve a kiss than a cake. My little daughter has been wanting in respect. I say to her, "*You must not speak to me for a quarter of an hour.*" When the time is over, she feels what a privilege it is to be permitted to talk to her father or mother, and she will do her best to deserve and retain it.

If I want to be still more severe, there

are many other little privileges of which I can deprive her, such as, of reading aloud to me in the evening, cleaning my shoes, waiting on me at table, etc., etc. Of course this treatment is mainly suited to little children; older children would be wounded in their pride and might show resentment or irritation instead of regret.

Should displeasure be of long duration? Well, if one began to look pleasant immediately after showing anger, the child's sorrow would not last long; in fact, he will be quite likely to risk the inconvenience a second time. If, on the other hand, a parent keeps up his estrangement too long, the child who needs consolation will seek it elsewhere and so the parent will lose the advantage of his reproof. The moment comes when a child, after experiencing to the full the weight of the reproof, becomes incapable of feeling it any longer; this is the moment to forgive the child and restore him to favour. The parent steps in when the child is about to fall back on himself, and by a judicious word of kindness and consolation he reaps the reward. A moral privation must be *neither too long nor too short in duration.* Then, once the punishment is given, say no more about the fault. The child has paid the penalty, let there be an end of it; make friends and let the child be at peace.

11. *Treatment to be according to characters and circumstances.* Punishments, like reward, must vary according to the age and sex of the child, and according to circumstances and dispositions. I should be more strict in the case of a child of ten than of a baby of five. Usually, too, a somewhat more stern and distant tone of reproach may be adopted towards a boy *of ten years old* than for a baby of *five.* With *boys* I should give, by preference, blame severely and coldly; with *girls,* affectionate remonstrances.

Suppose Janie has just done some very silly thing, something quite unusual, which, I think, is an accident; I shall not blame her as severely as if it was an everyday occurrence. I must take more notice of a moral fault than of some breach of order.

Even in the latter case, I must consider the *circumstances*: a thoughtless action is less serious when the mind is occupied with something else. I was meaning to be very angry with Leo for he is, as a rule, not much affected by a slight reproof. On this occasion, as soon as I began to speak to him, I noticed that he changed colour and began to cry. I saw at once that I must modify my reproaches. If the child cries, he must be keenly aware of his fault and that is all I want. I will not say anything for a moment, but then, afterwards, I will comfort and restore him to favour—an excellent opportunity for strengthening the sympathy between us.

What do most parents do in such circumstances? Many pretend a still greater anger and almost triumph over the child's tears. A petty triumph! The child turns away, hurt, and when you are at last willing to forgive him, not having yet ceased to grumble at him, it will be too late, for his heart will have hardened and perhaps a second time he will not unfold himself to you.

Suggestions for Study and Practice.

Educators Should be Philosophers.—To look forward to the time when all concerned with schools have wide and carefully considered views on the work of education in general, and the part schools can properly take in that work, is to look far ahead. But surely it is our true ideal, for it is a possible, and undeniably a desirable, state of things, and one in line, it may be hoped, with present tendencies. In his ideal republic Plato saw no salvation for the State unless philosophers should be kings; we may urge that the kings—or all that bear rule or fill office in our scholastic republic—should at least be philosophers in the sense that, by meditation and study as well as by experience, they have learnt what true education means, what are the mutual relations of its agents, and in what consists its ineffable importance for the nation."—*J. Welton, D.Lit., M.A.,* in his book on *What do we mean by Education?*

The New Spirit in Education.—"The

increase of foreign competition, the growing specialisation of modern industry, the steady rise in the importance of democracy, and the advance in scientific method and hygiene, have been responsible for giving to elementary education during the last forty years, and especially during the last two decades, a character of its own. There has been an increasing tendency to emphasise the social responsibilities of the school, to break down the barriers that have been erected between the life in the school and the life in the home and the outside work, to make school work more practical and less bookish, to develop, in short, handiness and practical capacity. At the same time increasing stress is laid on putting children in the way of acquiring knowledge for themselves... Much importance is attached to developing the physical nature of the child and to training for citizenship and service."—*C. Birchenough, M.A.,* in his book on the *History of Elementary Education in England and Wales.*

Handwork and English Composition.—"One quite unexpected effect of the practice of handwork has forced itself upon my notice—an improvement in English composition. That handwork should affect the arithmetic is readily conceivable, but that it should influence the composition is a little surprising. Yet such seems to be the case. Although girls, as a rule, are more proficient in composition than boys, yet in each of the four boys' departments referred to [where special investigations were made] higher marks were obtained for composition than in the corresponding girls' departments."—*P. B. Ballard, M.A., D.Litt.,* "The Need for Experimental Evidence of the Value of Handwork," *Educational Handwork,* January, 1915.

The Right Kind of Text-books for Children.—"The unpardonable sin in a text-book of this kind [which says, *e.g.,* 'Sterne's humour possesses an imperishable quality which will ever give his works a very high place in our literature'] is that it creates a semblance and pretence of knowledge. It makes children think they know something, when it reality they know nothing. It leads them to mistake an acquaintance with words for a knowledge of things. The boy or girl will reproduce on paper the sentence that 'the *Dunciad* is a satire on dullness,' and thinks that he has said something, when in reality he has said nothing, because the words correspond to no idea in his mind. Still worse is it that he mistakes for knowledge the mere passive acceptance of the author's opinions...The need of the history text-book of to-day [for children] is, not that it should be made scientific, but that it should be made human and possible of digestion by the ordinary human mind."—*G. F. Bridge,* "Text-books of History and Literature," *The Journal of Experimental Pedagogy,* December, 1914.

The Psychology Needed by Teachers.—"The first thing that the teacher wants is an easy analysis of his own mental experiences, to which his attention can be directed introspectively...What we want to know is, how far, so to speak, a child or young person will develop without teaching, and what differences, advantageous or otherwise, teaching makes... Two main lines of research provide material for teachers. First, work in the evolution of the growing body and mind. This gives us much, and is most suggestive for educational theory. Suggestive, I say, not conclusive, for the determining issues for teachers rest with another and newer science—to wit, experimental pedagogy. Secondly, then, we must turn to the body of fact and criticism which is now growing up, in which we find the suggestions of psychology tested in actual practice as school methods."—*W. H. Winch,* "Psychology and the Training of the Teacher," *The Journal of Education,* May, 1914.

The Child-Study Association and the Constituent Societies.

Research Work.—A Research Committee of the Child-Study Association has recently been formed. Its objects are to organise co-operative research upon subjects that need extensive collection of comparable data, and to assist members of the Association who have problems of their own, by

suggesting reliable methods of investigation. A preliminary programme of work has been drawn up; and it is proposed to commence with the standardisation of mental tests for various ages of child-life. Illustrations of the nature and uses of such tests are given in the paper on "Mental Tests," by Mr. Cyril Burt, in this number of *Child-Study*.

A test for investigating errors in reading, together with instructions for its use, is nearly ready. A full announcement may appear in our next issue, when the active co-operation of members of constituent societies will be called for.

The Birmingham Society.—The pressure upon the space at the disposal of the University renders it impossible for us to hold our meetings in the accustomed place. They will, in future, therefore, by the kindness of the Governors, be held at the High School, New Street, at 6 p.m. Mr. Pease, in his circular to all engaged in the work of education, appealed to us "to keep the system of Education going." There was never a time when it was more necessary to attend to the needs of the children. The Committee of the Child-Study Society has therefore adopted the national motto of: "Business as usual," and trusts that members will respond by ensuring large audiences at all meetings.

There was a crowded audience on Tuesday, December 8th, when Mr. A. Horton, District Inspector of Schools for Birmingham, lectured on "Our Elementary Schools from an Inspector's Point of View."

It is with great regret that the Committee announces the resignation of the President, Dr. Walter Jordan, who has untiringly and so ably rendered many services to the Child-Study Society.

Mrs. George Cadbury has kindly accepted the office of President, and was cordially welcomed when she took the chair on December 8th.

The remaining Lectures for this session are:—

February 16th.—*The Significance of Rhythm in Plato's Scheme of Education,* by Professor E. T. Campagnac, M.A.

March 16th.—*Leading Principles in Educational Reform,* by Professor J. J. Findlay, M.A.

Miss A. J. Dawes (Hon. Sec.).

The Exeter Society.—Owing to pressure of work arising directly or indirectly from the war, it has been impossible so far to arrange for meetings; but during the present term it is hoped that papers will be given by Dr. Davy and Dr. Stirk on the Children Act.

The Hartlepools Society.—The lectures for 1915 are as follows:—

February.—*Climate and Man,* by Prof. L. Lyde, M.A.

March.—*Child-Study and Research,* by Cyril Burt, Esq., M.A.

April.—*The Backward Child,* by Frank Roscoe, Esq., M.A.

At the Annual Meeting, held in October, Miss M. W. Duncan, LL.A., was appointed co-secretary.

The London Society.—Preliminary notice of next Course of Lectures. Thursdays, at 6 p.m.:—

February 11th.—*With the British Association in Australia,* by Dr. C. W. Kimmins; Chairman, the Hon. Sir John Cockburn.

Tea and coffee will be served after this lecture, when it is desired that members should take the opportunity of discussing with Mr. G. T. Tibbey the formation of Reading Circles.

February 25th.—*Discussion on the Care and Development of the Child.* Ante-Natal: Dr. Eric Pritchard; Infancy: Miss J. Halford; One to Five Years: Dr. David Forsyth.

March 11th.—*Discussion on the Care of the Child during School Age;* Treatment Centres and their Possibilities: by Miss Margaret McMillan. Care Committees: by Mrs. Evelyn.

March 25th.—*School Dental Treatment in London.* The Care of the Teeth (illustrated by lantern): by C. E. Wallis, L.D.S., M.R.C.S.

N.B.—The Annual Meeting of the Society will be held after this lecture.

The lectures will be given on Thursdays at the Royal Sanitary Institute, 90, Buckingham Palace Road. Members are asked specially to note that the time for these meetings has *been changed to 6 p.m.*

Reviews.

What do We Mean by Education. By J. Welton, D.Lit., M.A., Professor of Eudcation in the University of Leeds. Pp. xii., 257. Macmillan and Co.

There is always a theory of ends, either immediate or final, at the back of every system of education, however empirical or scientific, explicit or implicit, it may be. The ordinary man, whether teacher or layman, pays little or no attention to this fact, and, therefore, the practice of education suffers, for where the end is not clear the means will be more or less haphazard and confused. Every step of progress in educational theory and practice brings us nearer to the recognition of the necessity of facing the issue, and trying to get clear and systematic views regarding it. Every important writer on education has touched on this topic, but most have done so incidentally rather than primarily.

Professor Welton seeks to deal with the matter as a fundamental and essential, indeed, as the supreme, issue in a theory of education. He is "profoundly convinced that theory of education cannot be separated without disaster from theory of life (p. vi.)... From its very nature as purposive human effort education is essentially teleological (p. 8)... The first essential, then, in entering on a theory of education is the recognition that its truth, as a whole, is relative to the truth of the view of life it embodies, and towards the realisation of which it points (p. 35)... The ultimate aim of life is spiritual and not material" (p. 92). It will be seen that this leads us to the

deep things in education. The subject is dealt with under these heads:—The end rules the means; What should be the end; Synthesis of liberty and authority; What are the means; Who are the agents.

Every earnest and thoughtful teacher who is ambitious to grasp the highest and deepest truths in education, will find himself the better for reading and seriously studying such a book as this, whether or no he agrees with the writer's view.

History of Elementary Education in England and Wales from 1800 *to the Present Day.* By C. Birchenough, M.A. Pp. viii., 394. W. B. Clive. Price 4s. 6d.

Though this book is primarily intended for, and will be of real value to, teachers, it is still more important that administrators, organisers, and legislators concerned with education should study and profit by it. There is no surer path to success in reforming systems than an intelligent knowledge of their historical foundations and developments. Many of the worst mistakes made by teachers and others concerned with schools are due to the lack of such knowledge. Nothing is more dangerous to true progress than ignorant zeal, and in no department of public life is this more common than in education.

Hitherto there have been only a very few books seriously dealing with the same subject matter. Mr. Birchenough's book admirably carries on the work which these began. Wide reading and research have gone to the making of this valuable contribution to the history of schools and educational methods in England. Part I. deals with "the evolution of the modern State system of elementary education"; Part II. with "the evolution of the curriculum and the internal organisation of the primary school"; and Part III. with "changes in the status and in the training of teachers."

The book is, for such a compendium, unusually well written, and can be confidently and cordially recommended to teachers, members of education authorities, members of Parliament, and all who are seriously interested in the improvement of our elementary school system.

Child Training: Suggestions for Parents and Teachers. By Mrs. Arthur H. D. Acland. Pp. x., 179. Sidgwick and Jackson, Ltd. Price 2s. 6d. net.

This is a good example of a book on education written by the intelligent layman, though it has more of the virtues and less of the vices usually met with in such writings. The writer says: "This little book...hangs upon" the words of advice given to her—"I begged him to give me some guidance"—by the late Mr. T. H. Green, Professor of Moral Philosophy at Oxford, when she was "a young mother...thoroughly puzzled by the books written by the experts of all ages upon child training." The writer says:—"Having watched...I have learned that the main problems are always the same, and that any suggestions which tend to show them in a simplified form may be useful." Which is as if one said: 'I couldn't understand what all the doctors of all the ages had written about my complaint, so I sought and followed the advice of a professor of chemistry in treating it; found out all about the matter, and now instruct others.' Why do self-confessed beginners pour scorn on the knowledge of experts? Surely this does not, to say the least of it, make their own knowledge any more or less, better or worse. And then to set up as dogmatists!

At the end of the first part of the book we read: "how very simple it is to do the right thing by children for whom we are responsible...It is all so simple" (p. 51). Perhaps the following may be taken as an example: "I do believe that on rightly chosen occasions, when children are very young, they may be helped by a few 'smacks' to see that wrong is 'wrong' better than in any other way" (p. 138). This is an amazing short and sure way to secure specific intellectual activity and to instil definite abstract ideas on morality and religion by a minimum of physical reaction in "very young" children! Obviously expert educationists, psychologists, and moralists, are unnecessary if this is all there is in education. One wonders if the writer made herself responsible for the medical care of her children in the same way as for their education.

Syllabus of Moral and Civic Instruction. Compiled by F. J. Gould. Pp. 31. The Moral Education League, 6, York Buildings, Adelphi, London, W.C. Price 2d.

Parents and teachers who follow Mr. Gould's system of moral instruction will find this a helpful little booklet. It contains hints on aims and methods; a syllabus of moral and civic instruction arranged in seven stages, and with outlines of the lessons; and a short guide to some sources of story-material. The course is intended for children from 7 to 14 years of age, in elementary, preparatory, and (the lower forms of) secondary, schools.

Publications Received.—*The Educational Times; Journal of Education; Educational Review* (U.S.A.); *School and Life* (Russia); *Journal of Educational Psychology* (U.S.A.); *El Monitor de la Educación Común* (Buenos Aires); *The Journal of Experimental Pedagogy.*

The Soldiers' Geography of Europe, with thirty-one illustrations and maps; George Philip and Son, Ltd., pp. 96, price 3d. net. *Marching Songs and Tommies' Tunes,* a handbook of National Melodies for our Soldiers in Camp, in Barracks, or on the March; Stanley Paul and Co., pp. 60, price 6d. net. *Lads for the Empire* [agencies for emigrating boys]; P. S. King and Son, pp. iv., 48, price 3d.

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Binet's Mental Tests; What they are, and what we can do with them. VIII.

By W. H. Winch, M.A.

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In this, the eighth article, I continue my account of Binet's Tests, and show what was done with them in the three selected infants' schools.

For reasons which I gave fully at the commencement of the seventh article, I have thought it well to finish my description of the results from infant schools before proceeding with those from senior departments, namely, boys', girls', and mixed schools. Teachers of senior departments who are very keen on the proper grading of promoted infants, will find in these "Mental Tests" a powerful auxiliary; particularly when they see what clever children of six and seven years can do, and, may I say also, when they see what other children of these ages can *not* do.

There are, in many senior schools, if not in most, a number of children who lag behind very heavily in the lower classes. Many of these, though not "defective," are suitable for a curriculum different from that of the ordinary "standards"; and one educational problem of the near future is the detection of these children at an early age, so that provision may be made for them as soon as possible. By no means all schools possess either the class-rooms or the staff to permit this adequately to be done; but some schools do; and without any disturbance more serious than a slight and gradual re-arrangement, the "sub-normal" children within any one group of schools might, from time to time, be collected within such schools as have facilities for dealing with them. Properly selected, there is very little prospect of a re-transfer being required, hence that difficulty will not arise. But first of all we must secure their detection, which Binet's and other Mental Tests will enable us to accomplish on a reliable basis.

Binet's First Test for Nine-year-old Children deals with a child's knowledge of the day of the week and its date. Four items of knowledge are required, he says: the child must know the day of the week, the month, the day of the month, and the year. To "pass" the test satisfactorily, the day of the week must be given quite correctly, the month must be correctly named, and the year also; but the day of the month may be incorrect by three units: thus, the seventeenth day of the month may be called either the fourteenth or the twentieth, or any date between the fourteenth and twentieth.

Binet appears to have been led to adopt this test, partly, at least, because of a current practice in *les écoles maternelles*. Every day, he says, at the opening of school, there is a language exercise comprising the day and date. Nevertheless, he continues, it is not until *nine years of age* that French children really know these things. Whereupon he makes some well-deserved criticism on school-curricula which do not take adequate account of the natural development of the child. What is the use, he asks, of these daily exercises in *les écoles maternelles,* if it is not until nine years of age that the child can comprehend and remember the instruction given?

One word to teachers: *les écoles maternelles* do not correspond exactly to our infants' schools. Children leave them at a distinctly earlier age than they leave our

infants' schools. Most of our schools include "Standard I.", a commencing class for senior departments. This is not the case in French schools, nor in American kindergartens; and in Germany there are no, or few, municipal infants' schools of any kind. Possibly our system is better, possibly it is not; in any case, let us realise the differences. Let us agree, in any case, with Binet, that daily exercises which bear little fruit for years are likely to be a waste of time, energy and temper.

We must follow the child, says Binet; but he goes on, quite rightly and necessarily, as it seems to me, to indicate that we should, if I may be pardoned an Irishism, follow him by being a little in front of him. Binet has no sympathy with the theorists who wish us to follow the child from behind; indeed, it is not very clear, on that view, that schools would serve any useful purpose at all. But in order to be just in front, the proper distance, not out of sight, but just far enough for effective leadership, we must know where exactly the children are. This is the pedagogical justification for all "mental tests" and other psychological work with children.

But to return to the particular "test" and the results in our own schools. Our children of six and seven were asked the four questions proposed by Binet. The results were curious and instructive. No six-year-old children in the "intermediate" school "passed" the test; whereas fifteen per cent. did so in the "very poor" school. Can we say that "chronology" is an acquisition of a lower rather than of a higher type of child? Let us consider, before we finally answer that question, what the seven-year-old children did. In the "intermediate" school eight per cent. "passed"; in the "well-situated" school and in the "very poor" one over sixty per cent. of the seven-year-old children "passed" in each case.

It is quite obvious from these facts that we are not dealing merely with natural differences, but with a marked pedagogical factor. Inquiry speedily disclosed it, for I found that in *all* the schools nature and weather charts were used; but only in two of them, the "very poor" and the "well-situated" schools, were all the four points referred to which are required by the Binet Test. Only in the "intermediate" school can the test be regarded as in any way satisfactory for grading purposes, and even in that case it is doubtful. No six-year-old child in this school could "pass" the test. The day of the week was frequently given correctly, but the date or day of the month was not known by any child. Two boys, when asked "What is the date?" said, quite correctly, from the standpoint of their knowledge, "What you eat." The word "month" did appear to be vaguely comprehended by a few children of this age; but even in these cases the name of the month was not known. The meaning of the word "year" was most certainly not understood; the names of the seasons were often given instead of the year. No child attempted to give a "number" of any kind for the year.

At the age of seven years, there was much improvement, but still very few "passed" the test. Eighty-four per cent. gave correct answers to "What day is this?" To the question, "What month is this?" forty-eight per cent. gave correst answers; twenty per cent. were a month behind, and five per cent. were one month in advance of the actual month. One child gave "July" for "March"; another gave "August" for "March"; others said, "It is spring now"; another said, "It's nearly summer now" (the actual month was March); and one boy gave the date spontaneously, but he said "The nineteenth," when it was really the twenty-eighth.

In response to the question, "What date of the month is it?" forty per cent. of the English seven-year-old children answered quite correctly. The following are some of the incorrect answers: The first was given for the second (this answer is, of course, acceptable); the first for the twentieth; the thirteenth for the second; the eighteenth for the twenty-eighth; the third for the ninth; the twentieth for the tenth; the sixth for the tenth; and the

twenty-second for the tenth. The names of months, correct and incorrect, were also given instead of the date. Some children answered by naming the day of the week, and one boy said, "It's a fruit."

In answer to the question, "What year is this?" twenty per cent. of these seven-year-old children answered correctly. One of these, a girl, when asked how she had found out, said, "I can see it on the thing what we tear off in our class." She referred to the calendar, but she was not in her class-room when answering the question. Some children said "Spring"; others gave the day of the month instead of the year; but most of them gave no answer, though they appeared to be endeavouring to do so.

As I have said before, only eight per cent. of these seven-year-old children "passed" the test. It is true that they are only seven, and that this is a Binet nine-year test; but clever infants can frequently answer tests well beyond their years. Moreover, this is a first-rate school, though not situated very favourably with respect to neighbourhood.

On the whole, I regard the test as unsatisfactory, and dependent so much on definite instruction directed specially to the particular issue, that I should omit it altogether as a "mental test."

Binet's Second Test for Nine-year-old Children is also a chronological test, though of a slightly different kind, since it deals with the days of the week. It is not quite satisfactory to have two tests of this description so close together. It will be remembered that no chronological test has been given in the Binet series since the distinction was asked for between "morning" and "afternoon"; and now two of them appear for children of the same age. However, before further criticism let us hear what Binet himself has to say about this test. It is *extra-scolaire;* that is to say, the order of the days of the week is not *taught* in the schools. So far to the good. He goes on to say, *"On peut s'étonner que nous mettions à neuf ans la date de cette acquisition. Cependant, c'est la vérité."* Children in French schools do not know the days of the week in order until they are nine years of age! Quite off-hand and without individual investigation, our teachers are of opinion that English children know them before that age. But, perhaps, the conditions of "passing" the test, as Binet lays them down, are too rigorous. Let us see if that explains the difference.

The child, on Binet's standard, is required to name the days of the week correctly in their proper order without hesitation, and must not take longer than ten seconds. If he omits a day, or places it in the wrong order, he "fails." We adopted Binet's standard precisely as given. The experimenter said, "Tell me the days of the week," and gave no further explanation of what was required. Our results in all three schools were much better than Binet's. I give an analysis of the work done in the "intermediate" school.

At the age of six years, no less than sixty-eight per cent. of the children "passed" the test. Of those who could not do so, an additional sixteen per cent. would have been correct had they not omitted Thursday; the remaining sixteen per cent. failed completely. Many of those who were correct went on again without a pause after having gone through the series once. I ought to say that it is not, in my judgment, demanded that the series should *begin* at Sunday; many English children begin with Monday. In the "very poor" school almost every child began with Monday.

At the age of seven, about eighty per cent. of the children easily passed the test; and, as the six-year-old children had done, they often named the days of one week in order, and then, without a pause, started again.

Among the inaccurate children, Thursday was again the great stumbling-block; but, while suspecting the operation of some constant psychological factor producing this, I know of no special one. It is probably only a particular case of the forgetfulness of an item in the middle, or slightly after the middle of a series.

Both the "very poor" school and the "well-situated" school showed slightly higher results than those of the "intermediate" school.

As far as English children are concerned, this test, if used at all, is suitable for seven-year-old children. I do not think highly of it, since it would be quite possible for an intelligent child, if specially coached, to "pass" this test at a very early age. Binet's children, it will be remembered, could not "pass" till nine; ours can do so at seven, but I am quite unable to explain the superiority of the English child in this test.

Binet's Third Test for Nine-year-old Children is an arithmetical one. English teachers would describe it as an exercise in *practical* arithmetic, since it consists in "giving change." Let us hear Binet's description first. It is an exercise he says, which is not altogether *extra-scolaire,* it demands *un peu d'instruction.* Nevertheless, it is a very valuable test, and we can give it the allurement of a game, *on la rend ainsi récréative, et c'est un repos pour l'esprit.* I doubt very much whether many of the little ones find it *un repos pour l'esprit,* but undoubtedly the great majority take much pleasure in attempting it, as indeed they invariably do in all good psychological tests.

The following are Binet's instructions to the experimenter: Place on a table nine pieces of current money, a five-centime piece, a ten-centime piece, a twenty-five centime piece, a fifty-centime piece, a franc, a two-franc piece, a five-franc piece, a ten-franc and a twenty-franc piece. In addition to these, place there also money to the value of sixty-five centimes, made up of three ten-centime pieces and seven five-centime pieces. The experimenter is to say to the child, "Would you like to play with me at shops? You will be the shopkeeper. Here is your money; you can use it to give change." Then, showing him some boxes, say, "Here are the things you are going to sell. I am going to buy this box, and I will pay you for it. I will pay you four sous. Will that do?" The child agrees and smiles. Then the experimenter must give the child a franc and say, "I will buy it for four sous; now give me my change," at the same time putting out his hand for the money. The child "passes" the test if he gives eighty centimes as change.

Binet says that the child often says, "I ought to give you sixteen sous" (eighty centimes), but then fails to do so, giving fifteen or seventeen, for instance. This observation is of great importance. Is it true that, even at these early stages, the mental, the abstract aspect of the case, is really in advance of the concrete or physical aspect; or is it a defect of school instruction merely, that a child knows what change to give before he can give it? If the former is true, it will show us English teachers the limitations of concrete arithmetic in a way which will be somewhat of a surprise to many education theorists of to-day. I do not wish to prejudge the question; it is one for detailed investigation, and so, for the present, I leave it.

Binet continues: Of course, we shall find more serious errors than those just cited; sometimes two francs or four francs will be given as change. Once a school-child of ten years of age gave us a sum of thirty-five francs; but such an error is very exceptional. There are individual differences, he says, in such a simple act as giving change. The most adroit take first a piece of ten sous, to which they add six sous afterwards. Sometimes, like true salesmen, they say, "Four sous and ten, that makes fourteen sous, and six sous more, that makes twenty sous." Sometimes they even count in centimes, but these are the experts. (I commend this observation to the advocates of a metric system). Others simply allow themselves to be influenced by the thirteen sous lying on the table. They begin by collecting them, and they count them; then they find themselves in difficulties, for in this way they cannot arrive at the required change; they are obliged to commence all over again. They ought to take away some of the sous, and add the piece

of either ten or five sous. The most backward are attracted by the sous, since these appear to offer the least difficulties. The habit of handling money is needed before a child will pick out a piece of ten sous, then a piece of five sous, and add one sou to these so as to make up sixteen sous.

But the "pass" standard is concerned with one question only: Does the money given as change amount to 0fr. 80 (sixteen sous)? At the age of seven hardly any French child can give the required change; at the age of eight rather more than a third can do so; at nine all succeed.

There is much that could be said with reference both to Binet's test and to Binet's comments; but, after all, the best commentary is to set a parallel exercise (it cannot be absolutely identical, since our coinage is different) with English children, and see what they can do, and above all, if we can, see how they do it.

In carrying out this test with English children, the experimenter placed nine pieces of English money in a group: A halfpenny, a penny, a threepenny-piece, a sixpenny-piece, a shilling, a two-shilling-piece, a crown, a half-sovereign, a sovereign, and, in addition to these coins, sixpence-halfpenny made up of three pennies and seven halfpennies. He then gave a small box to the child, and following Binet's directions, explained to him that he was to be the shopkeeper and sell the box for twopence. The child hands the box to the experimenter, who gives the child a shilling and asks for the change. Binet's "pass" standard was adhered to; the child was required to give the change quite correctly in order to pass.

It is important to note that previous to this experiment (which took place two or three years ago) no coins had been used for practical arithmetic in either of the three infants' schools which did the work; this fact must be borne in mind when estimating the results.

At the age of six, a very small percentage of our English children were able to give the correct change. One boy selected at first four pennies and six halfpennies to make up the required tenpence; then discarded the six halfpennies, and finally gave a sixpenny-piece and four halfpennies. When subsequently questioned, many of the six-year-old children answered that the change was tenpence; but they could not make up the tenpence from the coins lying before them. Let us remember that Binet noted this also with French children.

At the age of seven, thirty-six per cent. of the children in the "intermediate" school were successful; whilst the success was greater in both the "very poor" school and the "well-placed" one, a difference we have found in every case where exercises with money have been concerned.

The following analysis applies to the work of the children of the "intermediate" school:—All the children who succeeded handed the change to the experimenter in a little pile. The children who were incorrect often knew what change they ought to give, but could not give it.

This is what the children actually did. One boy selected four pennies and eight halfpennies, and then a threepenny-piece, saying, "Now, that's too much. I will take a penny away; now it's tenpence." One girl picked out a threepenny-piece, a sixpenny-piece, and a penny; another selected four pennies, six halfpennies and a threepenny-piece. One girl gave one shilling and tenpence in change; she probably thought the shilling which was given her was a two-shilling-piece. When questioned subsequently, she correctly named the shilling when it was lying side by side with a two-shilling-piece; but when the shilling lay alone she called it two shillings. One boy, having picked up all the copper coins, found that he had not collected sufficient money to give the correct change, and said, "I want another penny." When told that he could not have another penny, he picked up a threepenny-piece, and said, "I want a penny out of this." He did not succeed in overcoming his difficulty.

A few children selected a threepenny-piece, three pennies, and eight halfpennies. One girl gave a threepenny-

piece, three pennies, and two halfpennies. Having marked her answer as unsatisfactory, the experimenter questioned her as to the name of the threepenny-piece. Her answer was "Sixpence." When asked what change she had given, she said "Tenpence." Another girl gave a threepenny-piece for the required change, and, when asked how much she should have given, said "Tenpence." She said subsequently that the threepenny-piece was sixpence, and though she did not know the threepenny-piece, she knew a sovereign when asked to name it.

Several children selected a sixpenny-piece and four pennies. One boy picked up all the copper coins, but laid them down again after a little while, and finally handed to the experimenter a sixpence, two pennies, and four halfpennies. Two children picked up all the copper coins, and then came to a complete standstill. One boy gave four pennies in change, and appeared to think he had been quite successful. When asked what money had been given to him for the box, he said "Sixpence." On being told that it was not sixpence, but a shilling that had been handed to him, he said at once, "Then I ought to have given you tenpence." Another boy gave a threepenny-piece only, and appeared satisfied. Another picked up all the copper coins—four pennies and eight halfpennies—and said, "I've got to give you tenpence. I want another two pennies." But he could not see how to make up tenpence from the coins which lay before him. Two children gave four pennies, but with hesitation. One child gave a sixpenny-piece; another picked up all the copper coins, then discarded them, finally giving a sixpenny-piece and four pennies, and saying, "That's tenpence."

As I believe that the day will surely come in educational theory when careful experimental and observational work with children will form its principal basis, I make no apology for this long and detailed account of just precisely how children attack these untaught exercises. I need not labour the outstanding inference from these observations; I have alluded to it before, and Binet was impressed by the existence of a similar state of things among the French. *Children can give correct change mentally before they can do it with actual coins.* What does that mean for us? Not that the earliest stages of number with very young children are not best taught with the aid of beads and sticks and strokes and dominoes, and counting skippings and steps up stairs; but that the number series, when it gets a fair start, goes on, so to speak, of itself, and is no longer bound down to actual presentments. In fact, the actual presented objects may be more difficult to manipulate than their mentally represented numbers.

There is, I know, a difficulty with the English coins in this experiment which does not exist in its French form. The French child can pay wholly in copper coins. It is true he has centimes to bother him, but "centimes" is an official name, so to speak; he really counts in sous. The English child cannot; he *must* use one of the silver coins. But Binet found the French child similarly bothered.

The English child seems definitely ahead of his French *confrères,* age for age. These infants had not been practised with coins; let that be clearly understood. Yet a fair proportion of them are quite successful at seven years of age; whereas among French children scarcely any seven-year-old children are successful. And ours is the more difficult, though a strictly parallel, test. Are we once again able to infer that, in the realistic aspects of knowledge, apart from the linguistic, in which we seem inferior, our English children are superior to the French? We hear sometimes that our school-boy arithmeticians are better than the French because our monetary system and our weights and measures are so much more difficult than those of France. Well, if our boys are better, that reason can scarcely be the right one, or, at least, can hardly be the only one, for our children are superior in number work from the very first, before they have dealt with "pounds, shillings and pence" and our complicated "weights

and measures." I have, temporarily at least, placed this test, as on my *Form,* among the eight-year-old tests.

There is just a word to say about the coins used. Except that they were made of cardboard, they were exact replicas in appearance (not in weight) of actual coins. I understand that such counterfeit coins are not now supplied to schools. If that is the case, I suggest to teachers that they use actual coins for the purposes of this experiment.

A Plea for the Wider Recognition of the Instincts in Education.

By John Macpherson, M.D., F.R.C.P.E.

A theory of education must necessarily be based upon a theory of life; for in so far as education is intended to fit the young for the battle of life, or to promote the interests of the race in any definite direction, it must be founded upon some theory of life.

Theories of life change incessantly, from century to century in a marked degree, from generation to generation in a lesser degree.

The Greek theory of life was ethical and æsthetical; the Roman, imperial; the early Christians looked for the immediate coming of the Kingdom of Heaven, and regarded the existing earthly life as negligible. We of the twentieth century regard such views with contemptuous indulgence, but our own view of life is perhaps equally erroneous. We also believe in the coming of a millennium, which will enable us to control our bodies and our minds scientifically. Education will become thoroughly scientific. Scientific politicians will know the laws "under which communities develop, flourish, and decay; and legislation thus informed will avoid mistakes" (Jack's *Alchemy of Thought*, page 204). This, of course, is a mere theory, which will assuredly be superseded, for it is based upon the analogy of the advance of the physical sciences. Unfortunately it is a false analogy, for behind it is the assumption that life is an object to be handled by rule "as men handle a spade or a gun; that man is to be handled by the book just as you manage electricity or fire. We would construct a formula for the government of life, but what if the essential principle of life is insusceptible of formulation? What if, as Bergson says, the intellect, so adroit in dealing with what is inert, is the clumsiest of instruments for dealing with what is alive?" (*Loc. Cit,* pages 206-207).

The moment life understands that you are tampering with it, that moment all certainty as to the result disappears. The uncertainty as to the results of the most careful legislation is proverbial. When self-conscious beings acquire knowledge of their past and their present, it incites them to something different from the formulæ of philosophers or statesmen.

Theories of education change, from time to time, in correspondence with new theories of life, but not so completely as theories of life. There is conservatism (the natural human aversion to change), which suffices to maintain traditional methods of education in a uniform groove in spite of all scientific and political views of life. But the greatest obstacle to the establishment of any radical reform in education is the current belief that the human mind is solely intellectual and the consequent ignoring of the instinctive element in mind. This is one of the strangest and most unaccountable forms of blindness to facts as they really exist. It is largely responsible for the frequently expressed disappointment with the results of modern education.

If we accept the prevalent opinion which holds the human mind to be primarily intellectual, and which discounts the instinctive element altogether, then our present system of education, which is wholly intellectual, is the only possible one, and there is no alternative but to pursue it steadily in the hope that at some distant time our efforts may justify themselves. On the other hand, if the human mind is primarily instinctive and only secondarily intellectual then very serious doubts arise as to the utility of our traditional methods of education.

It is therefore necessary that we should be quite clear as to the meaning and relative significance of the terms " instinct " and " intellect." The distinction is by no means simple, for these two manifestations of mind are so blended that it is often impossible to say where the one ends and the other begins. Nor is it always possible to say of any single animal action that it is wholly instinctive or wholly intellectual. The manifestations of life become more and more obvious, more and more complicated the higher we ascend in the scale of living things. To begin with, we have a living organism, of which it is difficult to say whether it is plant or animal. From this, on the one side, branches off an ascending order of plants, from the humble algæ or lichen to the giant forest tree; on the other side there branches off an ascending order of animals, from the protozoa of bacteria to man.

In animal life there are two supreme manifestations, instinct and reason. In the insects, instinct reaches its highest development, but it is unaccompanied by intellect as we understand that word. In the vertebrates (that is, animals with a special brain and a backbone containing a spinal cord, and which range from the fishes to man) the great characteristic is the presence of intellect; it may be very rudimentary intellect, but in a sense it is always there. The higher vertebrates, a little lower than man, give unmistakable evidences of its presence, as we see in such intelligent animals as the dog, but in man intellect reaches its highest culmination, and has been aptly described as his crown. The lower vertebrates are almost entirely guided by instinct, and man himself in his ordinary everyday mode of life is as instinctive as any animal. It is only when he is placed in circumstances calling for the use of reason that he exercises his intellect.

When we consider, for example, that most men eat, sleep, and fall in love, and how immensely these three instinctive processes bulk in the lives of humanity, we realise that intellect, when it is called upon to act in connection with them, is requisitioned with the object of regulating and refining our indulgence in them, or increasing our pleasure in them, or preventing other people from robbing us of our enjoyment of them. Even among different classes of men the use made of intellect varies greatly. A savage leads on the whole a less intellectual and a more instinctive life than a modern man of business, while the life of an idiot or an imbecile is almost wholly instinctive and unintellectual.

But the terms " instinct " and " intellect " must be more carefully defined in order that we may have no doubt as to their meaning. The best way to do this is to give examples of instinct as it exists, say, in the insect. With many such examples you are all more or less familiar. For instance, the work of the bee; the collection of honey; the mathematical formation of the honeycomb which could not be excelled for adaptation to its purpose by the highest human intellect; the rearing of the young; the selective feeding of the future queens; the killing of the drones and the swarming off from the hive. The life of the bee is so familiar to us that we have ceased to wonder at it. But there are other instances of insect life that are positively startling. The eggs of the horse fly are hatched in the stomach of the horse, and the fly therefore lays its eggs on the shoulder or legs of the horse, parts of the body which the horse can conveniently lick.

Certain species of wasps lay their eggs on spiders, beetles, or caterpillas, in order that when the eggs are hatched the larvæ or young wasps may live by eating these animals. But as it is necessary that the young wasp should live upon fresh meat, wasps do not kill their victims, but paralyse them by means of the following delicate surgical operation :—They accurately sting the victim just into the nervous motor ganglia which control the motions of the limbs. Some of the victims have as many as nine pairs of these motor ganglia, and the wasp in that case administers nine stings with unerring exactitude in the right place.

The sitaris, a little beetle, lays its eggs at the entrance of an underground passage dug by a kind of bee. When the egg is hatched, the larva or young beetle attaches itself to the male bee as it leaves its underground residence. From the male bee it transfers itself to the female bee, and quietly waits until she lays her eggs upon which it lives until it becomes a perfect beetle.

1. The first thing I would desire to observe with regard to these examples is that they are not solitary incidents in nature, for nature is made up of such incidents; in fact they form nature.

2. They are not the results of intelligence or reason as we understand that word, or of experience or of training.

3. They are exact and unerring adaptations of means to the required ends.

Take for example the knowledge—if we can call it knowledge—displayed by the wasp which stings its victim to paralyse but not to kill. What is implied here?

(*a*) A knowledge of anatomy and physiology possessed by few human beings, and then only acquired after a life-time of study.

(*b*) An unerring skill in performing a delicate surgical operation.

(*c*) A knowledge of the future requirements of its progeny on the part of a creature which has never had any progeny, which will not live see them, and which has never seen its own parents.

I might go on indefinitely, for instinct is the predominating factor in all life; but I have said enough to bring out this particular point of view.

It is now necessary to refer to intellect or "mind," as we wrongly call it. Intellect is feeble where instinct is supreme, and instinct is comparatively feeble where intellect is supreme. As Bergson puts it, " Intellect seeks but does not find, instinct finds without seeking." There is no intelligence in which some traces of instinct cannot be discovered, and no instinct that is not " surrounded by a fringe of intelligence." Therefore we may presume that both have a common origin, and that both are products of life. But intelligence, which is a later and a secondary product, is the peculiar property of the higher animals, especially of man. It does not supplant instinct in man, but it modifies it. Intellect is a function which enables us to regard instinct and its operations; it enables us to look around us, to look back and to look forward. By means of it we are able to form judgments, to criticise, to regulate our instincts, and to act, if necessary, contrary to the promptings of our instincts. To quote a biblical phrase, it is " a light unto our feet, and a lamp unto our path." At the same time, so far as the great functions of life and what we call mind are concerned, it is instinct that is fundamental, intelligence which is secondary or accessory. In order to establish this proposition, we must consider instinct in man, and we must distinguish between two kinds of human instinct.

1. That form of instinct which is common to all animals. In this sense our whole life is instinctive as is shown by the beating of the heart, the functions of growth, respiration, nutrition, and reproduction. The human infant, like the young of other animals, feeds itself, cries, learns to walk and play instinctively.

2. The peculiarly human instincts which are charactistic of man, but which are present in a more less degree in other animals, are seven in number. For a very clear exposition of them I refer you to Professor MacDougall's book on Social Psychology. These seven primary instincts, although, as we shall see, not the sole possession of man, are yet so prominent in him, so wonderfully blended, and so modified by reason as largely to account for the pre-eminence of the human species. Unlike the more primitive instincts exhibited by man in common with all animals, they do not properly develop their distinctive human character until childhood is past and years of discretion have arrived.

The following is a short description of each of these seven human instincts :—

1. *The Nutritive Instinct and the instinct of self-preservation.*—For convenience I class these two instincts together, although they are generally described separately. The emotion of fear is undoubtedly the emotion which induces us to avoid danger and to preserve ourselves from injury and death. It is our constant accompaniment in all the affairs of life; it prevents us from rash conduct of all kinds, and leads to caution, sobriety, and humility. It is present throughout the animal kingdom. The nutritive instinct is seen in the impulse which compels us, by the pangs of hunger or the appetite for food, to nourish ourselves, to avoid over-exertion, which implies waste of tissues and to seek luxury and ease.

2. *Self-abasement and subjection.*—There are strong reasons for regarding this as a primary instinct. It expresses itself in a slinking, crestfallen behaviour, slow movements, a hanging down of the head, and a general submissiveness. It is very well exemplified in the behaviour of the dog who often approaches a human being with his tail between his legs, or in the manner of a young dog at the approach of a larger, older dog; he crouches with his belly on the ground, his tail tucked away and his head on one side with every appearance of submission. In children the expression of this emotion is often mistaken for that of fear, but the expression of the young child sitting on its mother's knee, in perfect silence, casting furtive glances at a stranger, is not fear, but abasement or shyness.

Men and women vary much in the expression of this instinct. When it is temperamentally present we speak of a person as "modest" or "conciliatory" in manner, or as humble or reverent.

3. *Self-display and elation.*—The instinct of self-display is manifested by many animals besides man. Thus the prancing of a well-fed, gaily caparisoned horse and the strutting of a peacock have become proverbial. Many children, too young to walk or talk, exhibit the instinct amidst the admiring looks and plaudits of the family circle. A little later it is apparent in what is known as the "showing off" of children, in the boasting and swaggering of boys, and the vanity of girls. The instinct is naturally excited both in men and animals by the presence of spectators. It is this instinct that makes life tolerable for many of us by giving us what in Scotland we call a "gude conceit o' oorsels." The joy of life, and the elation of mere existence, supplies us with those harmless illusions of self-importance which sustain and cheer us on the weary path from the cradle to the grave. We live in hope, too often disappointed, that to-morrow will be better than to-day. We cling to life strenuously, and our worst enemy is death, about which we think as little as possible.

4. *The Social or Herd instinct.*—Among all gregarious animals, including man, there is an instinct which compels collectivism or living together in herds or society. This instinct leads to the formation of laws of conduct, and ensures by means of severe penalties that each individual shall conform to the rules and standards of the society in which he lives. From this instinct issue the ethical codes, the beliefs, the usages, and the laws common to every society of human beings.

5. *Curiosity and wonder.*—This instinct abounds in all species of the higher animals. Cows, horses, dogs, monkeys, and men evince it in an unmistakable manner. In man, under the guidance of reason, it is the prime motive of civilisation, scientific research, mechanical inventions, and philosophy.

6. *Pugnacity and anger.*—The fighting instinct is universal in nature. While some animals, notably some dogs and some men, love fighting for its own sake, in the vast majority of instances it is resorted to in the defence of property and rights. Be it ever so abject, a hungry dog will growl if anyone attempts to deprive it of a bone, a hungry child will scream if its meal is interfered with, and a timid animal will fight to the death for the preservation of its young.

7. *The Reproductive and Parental instinct* is a universal and a very strong

instinct. It is the bed-rock of human society, and ensures the continuation of the species among all the higher animals. From it and the tender emotion which accompanies it spring our sympathy, our charity, and the care which we bestow upon the sick, the weak, and the helpless.

These, then, are the seven primary instincts of man :—(1) self-preservation, (2) self-abasement, (3) self-display, (4) the social or herd instinct, (5) curiosity, (6) pugnacity, and (7) parental or family affection.

Man, then, according to this view, is a bundle of instincts, which form the basis of all human activity, and which supply the driving power by means of which all our actions, whether they are good or bad, are initiated and carried on. Take away the impulses coming from these instincts and we would become incapable of activity of any kind. Take for example love, whether sexual, or parental, or social. Could reason dictate the love of the sexes, or could religion stimulate our love for mankind, unless these were founded upon instincts inseparable from our nature? In short, men are actuated primarily by instinctive inclination and prejudice and by reason secondarily or only in proportion as it gives support to these.

The two chief instincts which govern mankind are nutrition and reproduction. That nutrition is a primary instinct is evident from the fact that it precedes reason in individual life. The first act of the newly-born infant is to seek food under the unerring guidance of instinct. The necessity for satisfying the pangs of hunger and thirst become in later years an imperative impulse which, given sufficient strength and cunning, can overcome almost all ordinary obstacles. The eating of food in ordinary circumstances is not subject to reason as the late Professor William James so clearly points out in the following passage :—

" Not one man in a billion, when taking his dinner, ever thinks of utility. He eats because the food tastes good and makes him want more. If you ask him why he should want to eat more of what tastes like that, instead of revering you as a philosopher, he will probably laugh at you for a fool. The connection between the savoury sensation and the act it awakens is for him absolute and *selbverständlich* an *a priori* synthesis of the most perfect sort, needing no proof but its own evidence."

But nutrition cannot be limited to the satisfying of hunger or the eating of highly seasoned foods or the drinking of expensive wines. Man wants, in addition, comfort, luxury, ease, the minimum of exertion, all of which, be it noted, tend in moderation and at first to promote nutrition and diminish tissue waste, though over-indulgence frequently may have the opposite effect. In order to obtain these aids to nutrition man must have money which he would probably in most instances prefer to obtain honestly, or, at any rate, without injury to others; but if that is not possible, he is too often prepared to fight for the possession of money, and in this struggle the weaker must go to wall. This is one of the chief factors in the struggle for existence.

The next primary instinct to be considered is reproduction. It is no less fierce, no less blind, no less animal, and no less disregardful of consequences than the instinct of nutrition. It is also as complex and far-reaching in its operations. The females of the higher vertebrates are, as a general rule, prepared to sacrifice their lives under the blind impulse of instinct; the males strain every nerve to provide protection and sustenance for their offspring. In the human species, where reason supplies additional foresight, and where the young are longer dependent, the parents have an additional incentive to make provision for the future welfare of their children, either by leaving them money to secure independence, or by giving them such an intellectual education as will enable them to secure for themselves nutrition (using the word in its broadest sense), equal to, or, if possible, better than their present circumstances afford.

There is nothing to be deprecated in all this; it is a perfectly natural response to

our instinctive constitution. People who decry it or who themselves act otherwise are, from the physiological point of view, abnormal and degenerate. If conduct such as this should appear to anyone immoral or cruel, it must be remembered that the instincts, like all the forces of nature, are neither moral nor immoral, neither merciful nor cruel; that in animals, including man, they are predominant; that they are the driving forces underlying all motive and action; and that in the absence of two such instincts as those of nutrition and reproduction, the human race would cease to be. Here then is a world "red in tooth and claw" which craves but for the satisfaction of the imperative impulses of instincts which are implacable and immoral. It is for such a world that we are content to regard a purely intellectual education as a sufficient preparation. It is true that our attitude in this respect is not wholly due to indifference or to ignorance. There is another influence of considerable force to be reckoned, namely, the advantages which an intellectual education afford, not only of escaping from poverty, but of increasing the opportunities of fulfilling the impulses of the two primary instincts we have been considering.

Fortunately there is a powerful modifying influence derived from the operations of another great instinct which counteracts in many ways the promptings of the two great animal instincts of nutrition and reproduction. That instinct has been termed by Mr. W. Trotter the herd instinct (*The Sociological Review,* Vols. i. and ii., 1908 and 1909). To Trotter belongs the credit of having placed this instinct on a true scientific basis, and I here express my indebtedness to him. I also acknowledge my indebtedness to Dr. Bernard Hart for his admirable little book on the Psychology of Insanity (*The Psychology of Insanity,* Williams and Norgate, 1912).

The chief characteristic of the herd is uniformity of purpose and action to ensure which it is necessary that each member should be sensitive to the behaviour of his fellows, following his neighbour and in turn tending to be followed. No erratic lead or abnormal conduct may be followed. The wolf which does not follow the impulses derived from the herd will starve; the sheep which does not obey the voice of the herd will be eaten. Each individual member must be responsive to impulses coming from the herd, and must treat the herd as his normal environment.

When we come to such a self-conscious rational animal as man, who is eminently gregarious, suggestions from the herd enter the mind as self-evident truths which need no proof and are not called in question. Each individual, in matters of opinion, conduct, dress, amusement, religion and politics, is compelled to obtain the support of the class to which he belongs—that is, of a herd within a herd. Among savages this is particularly obvious. Their life is simpler, but it is wholly surrounded by sanctions, prohibitions, and penalties. It matters not when an individual transgresses that the dreadful consequences predicted as a punishment for sin do not happen, he still believes implicitly in the superstitions of the tribe, and submits to them, for experience has incomparably less weight than the voice of the herd.

When we come to present day civilised society, matters remain pretty much the same. The ordinary individual holds firmly to beliefs derived from the herd on almost all conceivable subjects. As Trotter puts it: "He will have fairly settled views upon the origin and nature of the universe and upon what he would probably call its meaning: he will have conclusions as to what is to happen to him at death and after, as to what is and should be the basis of conduct. He will know how the country should be governed and why it is going to the dogs, why this piece of legislation is good and that bad. He will have strong views upon military and naval strategy, the principles of legislation, the use of alcohol and vaccination, the treatment of influenza, Municipal trading, and the teaching of Greek." The greater bulk of these subjects are problems admitted by experts to be still unsolved,

while upon others no ordinary man possesses the training or experience which entitles him to speak at all. All these opinions—all opinions indeed which result from herd suggestion—are irrational, but they are, nevertheless, held as truths, so self-evident, that it is considered wicked to question them. Beliefs which are the result of experience, which are capable of rational demonstration, are quietly accepted, and are not vehemently supported by argument.

Take, on the other hand, the case of party politics, the most prominent example of herd suggestion. To the one party the amazing thing about the other is their incapacity to see reason or to accept the only possible solution of political problems, *i.e.*, the solution of the first party. Each party finds its own position flawless, and endeavours to justify it by a system of reasoning which might often be regarded as flawless did it not originate in a premise which is irrational because it originates in the instinctive prejudices of the herd or party. Here it is the belief which is primary, while the explanation, which masquerades as the cause of the belief, is entirely secondary, and, but for the belief, would never have been thought of.

It is a perfectly normal condition of mind that belief sanctioned by the herd should continue to be held in spite of evidence to the contrary, and that reason should not be able to remove them. Reason indeed is lavishly used to support such beliefs, that it is a *post hoc* fallacious reasoning, because it is based upon an irrational assumption which, however, has all the force of a verifiable proposition. It is identical in this respect with an insane delusion which no amount of sane logic can eradicate from a disordered mind.

We have reached a point when it is necessary to consider the influence of the herd instinct on the great primary instincts, especially those of nutrition and reproduction. The restraints and sanctions of the herd instinct control in a marvellous manner the purely animal operations of the primary instincts, and in the process arises the life-long conflict between duty and desire. The result is tragedy—the tragedy of the ancient Greek plays and of the modern novel.

The child is taught, according to herd suggestions, that certain things are evil and others good, and although he has no experience and no guide beyond traditional teaching, inconsistencies become early apparent to him, which he must perforce recognise, but which he cannot explain. As he grows older and learns from experience, not only does the mental conflict between duty and desire become more severe, but other aspects of the problem come into the field of mental vision, such, for instance, as the cruelty which abounds in nature, the sufferings of the lower animals and of mankind, of the one baby out of four who dies in the first year of life, of the ravages of cancer, consumption, and insanity, and generally, of "the growing river of blood which bathes the feet of advancing mankind." The herd instinct teaches that all is for the best in this world; that suffering is part of a purpose which is leading the race upwards to some unknown but beneficial end.

What, for instance, are the possible means of escape to a person caught in one of these serious conflicts between duty and desire, or distracted between the teaching of the herd instinct as to suffering and pain on the one side and his own experience and feelings on the other? The individual may accept the herd teaching absolutely and thus obtain peace of mind. Such a means of escape is easy for the savage with his simple life and his uncomplicated system of hard and fast beliefs; it was easy for the early races of mankind, and it is easy for the very young of our own day, who, having no experience, must rely upon the herd teaching. It is more difficult for the introspective adult of the twentieth century. In this respect men of the present day may be divided into two classes. First, the normal man, the efficient man, the type of the ruler or the imperialist, possesses the faculty of excluding from his mind unpleasant circumstances of this kind. It is not that he does not recognise them, but that his

attitude towards them is somewhat as follows :—"I am powerless to alter the laws of the universe. I will not think of such things, but confine myself to my own duties," or he may frankly accept the herd teaching and be done, once for all, with speculation and introspection. The second class have not this power of mental exclusion. They are sensitive, introspective, and, compared to the first class, mentally unstable. They not only suffer themselves from the conflict between the impulses of the primary instincts and the restrictions of the herd instinct, but they are also sensitive to the sufferings of others. They have no logical means of escape under present conditions. Some of them break down under the strain of personal conflict, and lapse into one or other of the numerous forms of neurasthenia and insanity; some of them seek refuge in alcohol or similar deceptive remedies; others again engage in a visionary but futile war against the existing order of Society in the vain hope of altering the unalterable.

It is almost certain that the numbers of the mentally unstable class are increasing in the civilised countries of Western Europe, while there is reason to believe that the normal or mentally stable class are either not increasing or that they are actually decreasing, but a discussion on that interesting point would lead us out of the line of argument. What we have to inquire into is the rôle of education in view of the facts I have stated. If we are of opinion that what is termed the mentally unstable class is degenerate then the outlook is indeed serious.

But what if supersensitiveness to the conditions of life may be a means for the better adjustment of man to his complicated and ever increasingly complicated environment? In that case it behoves us to attempt by new methods of education to fit the young for the strain and stress of the fixed and unchangeable environment of life. It seems unnecessary to point out that the human instincts cannot change unless a new variety or a new species supersedes our own; but with such a problematical occurrence we have no concern.

But although the human instincts must always remain as they are, the influence of the herd instinct can certainly be modified, and it is to this question that those who wish to benefit mankind must turn their attention.

A necessary step towards that end is the proper instruction of the young. We have pointed out that too many of the opinions vitally affecting our welfare are irrational in origin. These ought, where that is possible, to be removed from the region of prejudice and hypothesis and to be based upon verity and scientific demonstration. When it is not possible to do so the fact should be frankly proclaimed.

There are important facts of life, the mention of which in the instruction of youth the herd instinct has tabooed. We virtually prefer that the innocent should be initiated, and that the inexperienced should acquire wisdom in the seething arena of life rather than that they should be forewarned and forearmed by judicious instruction before they enter it.

Another desirable step would be a sorting and classification of individuals according to their instinctive, innate tendencies and aptitudes, in order that they might receive, from the earliest possible period, education and training corresponding to those tendencies and aptitudes. We are not all of us equally endowed intellectually, and some who excel in one branch of a literary education are deficient in others. In any case we cannot all become clerks or civil servants; some of us have aptitudes for the arts or the crafts, or for agriculture, or for science.

All of us have, however, to face the battle of life, and in that kind of work or duty for which we posses an innate aptitude, and in which we can take pleasure, lies the principal hope of enjoying such contentment and happiness as the business of living affords. If we admit such a proposition it is clear that a special training along the trend of our instinctive tendencies should be embraced in any new scheme of education.

The herd or gregarious instinct is one of the most powerful human instruments for

the furtherance of the happiness or misery of mankind; but for beneficial purposes we have not even begun to use it. Its teaching at present is largely irrational and largely based upon prejudice. Science, it is true, mitigates this irrationality in the limited regions it has conquered, but there can never be a science of life for life is instinctive and beyond science which is primarily concerned with matter. Party politics and parliamentary government, in which so many people place a pathetic trust, are torn and disfigured by prejudice and irrationality. The main hope of the future, it seems to me, lies within the sphere of a rationally conceived and appropriately applied education of youth.

The Relation of Experience to Imagination in Stories Told by a Child.

By J. J. Webber, B.A.

If sufficient knowledge is available regarding a child's experiences some interesting observations may often be made of the early phases of constructive imagination. As might be suspected, the child takes little notice of the canons of consistency, probability, and logical sequence in general, but perhaps the most striking phenomenon in the present case is the way in which fragments of previous experience are forced into the service of imagination and built up into a fresh structure. The fragments in the mosaic of the story cannot be traced to their origin unless the observer's knowledge of the child's life is fairly complete, and even then some parts baffle investigation, since cross-examination concerning details is out of the question.

Jack (four years, eight months old) undertakes to tell me a story. "Once there was a man and he was very busy, so what do you think he did? (a) He spoke in a telephone, and he spoke so loud, and so much of his breath went into the telephone, that he broke the telephone, and the posts and the cross (pieces); and he found he had broken the telephone. (b) He got in that motor because he had broken the telephone, so that they should not lock him up. They said, 'Who broke the post down?' He said (c), 'Pooflum did it, Pooflum, Pooflum, Pooflum!' and so he went on and on. And presently the telephone was built up, (d) so he put all the people up a chimney and they melted, and the water put the fire out, and now that is all." But the narrative meandered on and "Pooflum" became (e) a man skilled with the bow and arrow, and able to shoot ever so far.

The items of experience drawn upon for the above story were as follows:—(a) He had been told how one calls up the telephone exchange, and had played games based on this, giving numbers with great gusto. (b) The robbery of the local post office by thieves who used a motor car suggested this item. (c) A cautious enquiry as to the identity of "Pooflum" was countered by the reply that it was "something to do with Goosey Gander." (d) He had seen some "comic" drawings, of a snow-man being made on a flat roof, and allowed to slide down the chimney so as to extinguish the fire. (e) The circumstantial evidence proves that the archer was Robin Hood.

It is interesting to compare a matter of fact account with the above. The imaginative note was struck but immediately abandoned. "Once upon a time——this is a *real* story, this is. Soon as I play with Kenneth we have a piece of paper and cut out some strips (to make a castle). Then I've got a cricket bat and try to knock the castle down. If Kenneth tries to keep it I've got to do it. After we've done that I go on playing in my way with Kenneth, and then sometimes we have a fight with each other. When that's over we go on running about and playing, and then when we've finished we run up and down the garden if baby has come in. And then we have a (sand) castle in the truck, and as we run it falls down, and Kenneth or I stands it up, and then we leave it out on the asphalt and that's all."

This story gives a fair sample of the stage which the power of oral expression had reached at the age stated. The first

portion is clearly influenced, in form at least, by the description of another game, given in his hearing some time before.

The most incongruous elements were worked into the following example. He began: "This is a story of (a) godmothers. One day a little boy (there was (b) three little sisters in one house), the little boy said to his daddy, 'Please bring me home (c) another mamma.' The little sister said, 'No, she would be unkind to you. I will be your mamma.' So it came later on and later on, and presently (d) her house caught fire while it was being built. So they moved: where do you think they moved? (e) Into the Penny Bazaar. (f) Only that brass caught fire. (g) Some more grew up. Not one of the toys caught fire nor the house. And the fairy godmother lived on in the Penny Bazaar and they never went back to the old house again."

As to the origins of the details:—(a) The Cinderella *motif* runs through this story. The identity of the anonymous "little boy" who asks questions is not hard to guess. (b) These are the three "Cinderella" sisters. (c) The idea of a stepmother comes from the same source, but where the interpolation of a sister undertaking to mother the little boy comes from I cannot discover, though Wendy in Peter Pan is suggested. (d) In his walks he had seen a house that had been partly burnt, being *re*-built. (e) The Penny Bazaar to a child is, in auctioneer's language, "That very desirable residence." (f) The brass was seen in quite another shop, glittering with reflected electric light. He thought it was on fire. (g) It was pointed out that brass does not grow. He replied, "Brass does! because there is a fairy godmother in this."

Parent Educators.

By Professor Bidart.

Translated by Miss M. S. Ryan, B.A.

Finally, *I shall try to make the punishment fit the crime.* It would be foolish to punish a lazy child simply by demanding an apology, or one who has been disrespectful by giving him ten lines to learn by heart. How often is this remark heard: *"Yes, he is a child who must be won by kindness, you will not get him to do anything any other way."* We should do well to ponder over this truth.

There are, as a matter of fact, some children who are so sensitive that they cannot bear to be scolded; at once you see frowning, quivering features, a heightened colour, and then the head bent down. It is of no use to struggle with such a temperament. The child will, figuratively speaking, break his head against a wall rather than give in. A pity, but 'tis so! These children are morally diseased and they must be treated as such. They are as sensitive as raw flesh. They are not habitually naughty; in fact they are nearly always steady and industrious. They rarely deserve punishment and still more rarely can they *be* punished. By leaving them alone when they are not actually doing wrong, by praising them slightly when they do better, by shutting one's eyes to their little failings, one can do much more with them than by harshness.

When later they are in a good temper, one can show them, not by way of reproach (they would not listen to it) but in simple talk, that children do often commit faults and must be reproved for them, that they need neither be surprised nor vexed, that it is no disgrace to be occasionally blamed, etc. In this way it is possible to get even such children into the habit of listening to words of reproof when they are deserved. It seems as if one must strive to infuse into these hyper-sensitive children a certain degree of moral courage.

Other children have the contrary defect, they are *indifferent to everything,* to blame, deprivation of any kind, anger, caning, kindness, rewards—nothing seems to move them. It is a very trying task to rouse these stolid lumps! Indeed for myself, I prefer the very sensitive child. It is possible to get some response and to feel that the child is alive; in the other case one might as well address a block of wood. Still, we must never despair, every human being has *some secret spring*

which may be pressed. It is the educator's business to find this secret spot with all the skill he may. Once the mind is opened, untold treasures may be found therein, if one has the wit to get at them.

It is of no use, of course, to punish and reward on every occasion; a child who is already not sufficiently sensitive would simply become more and more dulled. From time to time we must make use of *very vigorous shocks,* either agreeable or disagreeable. These will come upon him as a revelation, and will make him realise the feelings of joy and sorrow. When this happens, you may know that his salvation is secure.

Lastly, there are *giddy brains* who are not destitute of feeling nor of self-love, but they are destitute of energy or perseverance. We have to find it for them. I mean by that, that we must never let an opportunity slip. Every time they are in the wrong, a little tap across the hand with the ruler or something like that must make them learn by experience that if they wilfully forget, they will not themselves be forgotten, this is the best way of rousing them. All this must be done without any anger or fuss of any kind: no one would think of losing his temper with a bird, you simply take hold of it. Threats also are of no avail. Children of this type need deeds not words.

12. *How to master obstinacy.* I once knew a little girl who was very difficult to manage. When told to do something, she did not fly into a passion but she flatly disobeyed; when she was reproved, she listened in silence but she took no steps to amend her ways. If you tried to make her acknowledge her fault, she refused obstinately; in fact, it was sufficient to ask her to do something, for her to refuse to do it: she was only eleven, but she would only follow her own sweet will. It was of no use troubling over her or trying to control her, she was her own mentor and guide. If she suspected that anyone was about to reproach her she would begin to sulk. Day after day she became more difficult to manage, she was both disagreeable and sulky, a typically obstinate child. What a misfortune for her husband!

A friend of the family on being consulted could only quote this apparent paradox: *"The best way to correct a child of obstinacy is not to do it."* The parents thought that he was laughing at them; but perhaps he uttered a profound truth! Many parents, in fact, spoil their children. My lady is accustomed to do and to have all that she desires. She has only to hint at a wish and it is gratified immediately. If it should happen one fine day that she has to be refused something she wants, or she has to be told to do something, she is sulky at once and she goes off by herself, thinking, *"It is not I who will give in."* It is not she, in fact, who does give in, it is the father or mother who will. Though she may have little egoism or vanity in her to begin with, she will quickly become self-willed under this treatment. She has only to continue to do regularly what has been so successful once or twice, and gradually resistance will become a necessity to her and ill-humour a second nature.

There is another means of making a child self-willed, and that is to ask him to do too many things at once. Some mothers are always pestering a child to do something he does not want to do—to keep perfectly still when he wants to move about and exercise his muscles, or to be vigorous when he is rather tired and wants to rest, and so on. In the end, the child has to ask himself *what is really wished of him,* and he longs for the time when he can run about or rest as he pleases.

Then a child is sometimes punished because he does not stop himself instantaneously in some forbidden act. Now it may happen that he cannot do so, any more than a man, running at full speed, can stop at a moment's notice. Forgetting that every relapse is not a formal act of contempt for orders given, parents sometimes punish as due to obstinacy what is only due to the vivacity of youth and the activity of the child's temperament. The child who is repeatedly punished, though he has not actively rebelled, is apt to look on his parents as so many loads of bricks ready to fall upon him, he gets his head

out of the way at all costs and awaits the blow in silence! He has no other ideas, no further motive for action; he becomes stupefied. Thus obstinate characters may be the result of *a want of justice and of affection.*

This, of course, is not the explanation in every case; some children are temperamentally obstinate like the little girl I previously mentioned. The parents, anxious to correct her, sought advice in a book, and this is what they found. "If you want to reform an obstinate character, *you must be on your guard against any impatience.* If you are impatient, you give the child the victory he has worked for. Do not give him this advantage. Arm yourself with resolution and calm: this will upset his calculations and make him ashamed of himself."

Do not say to the child, "*You will not gain anything, for I shall be more obstinate than you.*" If you talk in this way, you are throwing down the gauntlet. What, if he picks it up? He would be quite capable of staking all he has to set you at defiance and defeat you. Instead of talking, act. Never give way till the child has obeyed you; make him understand by severe and, if necessary, frequent punishments that there is only one way and that is the path of obedience. You have only two sides to show him: you are happy when he is obedient and unhappy when he disobeys.

This only refers to the actual occasion. For future peace, you must not only destroy the habit of disobedience, but you must also improve his disposition, that is, you must attack the malady *at its roots.*

Obstinacy comes sometimes from *idleness.* The child who is lazy will oppose to your bidding a force of inertia which is much more difficult to overcome than a block of stone! You must attack his laziness and make him feel the pleasure that comes from industry and application. (See the chapter on the will and on work).

But most often a child is obstinate because he is *proud,* i.e., proud in a bad sense. For there is a worthy form of pride. The pride of the obstinate child is stupid and deserves pity. He sets himself up to resist his parents, as if a very little child would try to walk alone, clumsy and incapable as he is, and at last he bangs his head against a wall or falls headlong on the ground. Make him feel the stupidity and the pitifulness of the part he is trying to play and inspire him with the desire to change his nature. Show him how truly noble obedience is because by it he lays low a terrible adversary, the conquest of whom, especially as he is an adversary from within, is a very fine thing. Obstinacy comes from a wrong form of pride, *a proper form of pride* would volunteer submission.

Pride alone eats up the heart; it must be tempered by *affection.* Try to reach the child's heart. Whenever he is good, lavish on him signs of affection. A day will perhaps come when he will say to himself, "How wrong I was to defy such good parents." If he is penetrated once by this thought he is saved.

Appeal also to his *experience.* Contrive so that his obstinacy puts him in the wrong whereas, had he followed your advice, all would have gone well with him. He will understand that you are superior to him, and he will say to himself, "I had better listen to my father and mother."

The parents of whom I was speaking have followed this wise advice; at the end of two years, they had the happiness of seeing their daughter cured. To conclude, in all my dealings with my children, I must try to be both reasonable and consistent, calm and firm, patient and persevering. To encourage myself unceasingly to acquire these qualities, I shall daily have this thought present with me: "My children are growing up, one day they will remember their childhood and will judge their parents. I want to deserve their respect and their approbation. I want them to be able to say, '*She was a true mother! He was a good father!*'"

Suggestions for Study and Practice.

Games should Suit the Players. "Just as the subjects taught at school have been broadened in later years and just as the equipment of schools has been bettered to suit modern requirements, so should games and pastimes be broadened and greater opportunities should be given to every boy to obtain recreation best suited to his special needs. A boy with no aptitude for Greek is no longer kept year after year eating his heart out in vain efforts to learn it, and in the same way a boy with no aptitude for cricket should no longer be compelled to devote his time to it week after week and year after year. Just as in schooltime the common grindstone has given place to more specialised education in accordance with a boy's natural abilities, so in playtime the present compulsory games should give place to recreation more in accordance with each boy's particular taste and bent. Only in this way can a boy develop a really healthy mind in a healthy body."—*Charles A. Parker, F.R.C.S.E.,* on "Compulsory Games at School," in *The Educational Times,* February, 1915.

The Basis of Religious Training. "It is necessary to consider the child's development from age to age if we would understand both what he is able to appreciate at any given period and the best method of imparting it to him at that period. We need to know the child's developing capacity for religious knowledge of different degrees of difficulty; we need to know what spiritual truths he is capable of assimilating at each period of his life; we need, that is, to organise the teaching and training of the child in religion round the nature of the child himself. In this great task, no less than in the details of technique, we shall find the study of child-nature our sufficient guide, because it will reveal to us the stages of development through which the child's religion passes as it comes to maturity."—*Rev. G. H. Dix, M.A.,* in his book, *Child-Study, with Special Application to the Teaching of Religion.*

How to Treat a Sulky Child. "A sulky child is not sulky from the pure pleasure of the sensation; he thinks he has been slighted, or injured; he feels aggrieved. The bad habit may have got such a hold over him that the slightest opposition, the slightest attention paid to someone else instead of to him, may bring on the pout, or shrug, or ominous silence, or even tears. To help such a child it is essential that every legitimate cause of offence should be removed, and the child should feel that he or she is really cared for and justly treated. We need to show our affection even when the child least merits it, for such children are often suffering because they have alienated the love of those around them. Gentle raillery, overtures of friendship, consultation about the needs of some other person, are all methods of winning these children to sweeter ways. When once their trust and confidence have been secured we are in a position to talk to them about their failings, but not before. A teacher who has such a child in her class needs to be scrupulously fair in all her dealings and ready to acknowledge any inadvertence; sarcasm, reproof, contempt, shown to a sulky child only increase the disorder. It is often wise to ignore entirely any outward signs the child may give, for if it is possible by a genial atmosphere to overcome the dark clouds of sulkiness, much has been gained."—*Miss Margaret A. Wroe,* in her book *Thoughts on the Training of Children.*

Classification in Reading. From experiments conducted in schools in different towns it has been found that "one-third of the pupils of any given grade could do the reading work of the next grade above as well as the average of that grade; one-fifth could do the work of the second grade above it as well as the average of that grade; and one-eighth could do the work of the third grade above it as well as the average of that grade. Likewise, corresponding percentages of pupils in any given grade are no more efficient in reading than the average of one, two, or three grades

below it. Should these differences be taken account of in our schools? Should the pupils be reclassified into higher or lower classes according to their capacities?"—*Daniel Starch* (University of Wisconsin) on "The Measurement of Efficiency in Reading," *The Journal of Educational Psychology*, January, 1915.

Reviews.

Thoughts on the Training of Children. By MARGARET A. WROE, late Principal of the Manchester Kindergarten College. Pp. 162. National Society's Depository. Price 1s. 6d. net.

Miss Wroe very modestly says that the chapters of her book "attempt to deal with some of the difficulties confronting those who are engaged in the work of education, and to offer suggestions which are the outcome of some twenty-five years' practical experience." As she points out, "we need to prepare ourselves to be worthy guides; we want to help, not hinder, the child who is beginning life's experiences, and we shall certainly hinder him if we do not know how to give the right suggestion at the right time."

The little book is, as we should expect from Miss Wroe, full of sane and kindly advice, wise and competent analyses of practical problems, keen criticisms of errors, and sound educational views. It concerns, we should say, mothers and homes more than teachers and schools. Its general scope will be seen by the headings of some of the twenty-eight chapters:—Difficult children, children's faults, discipline, punishments, moral teaching, the development of conscience, sympathetic imagination, good manners, vulgarity, school treats, play and games, toys, learning by heart, babies, adolescence.

Mothers and teachers will find much good guidance in this book; but we wish Miss Wroe had written a book twice as long on half as many subjects.

Child-Study, with Special Application to the Teaching of Religion. By Rev. G. H. DIX, M.A., Principal of the Clergy House, Wimbledon. Pp. viii., 134. Longmans, Green and Co. Price 1s. 6d. net.

This is a sincere and able attempt to apply the results of child-study to the teaching of religion. The psychological side of the matter is put far more correctly, lucidly, and interestingly than is usual in books on similar lines known to the reviewer, and intelligent Sunday school teachers would greatly profit from a serious study of it. The following topics are dealt with, amongst others:—The developing of instincts, emotions, intellect, and will; and the chief characteristics of children from five to seven, eight to eleven, and eleven to fourteen years of age. Much helpful advice is given as to practical method; but sometimes, we think, wrong suggestions are made, *e.g.*, that the highest test of the teacher is "the ability to retain interest [of children] in a subject naturally uninteresting" (p. 46). Is it not true that no subject is "naturally uninteresting," though some subjects are at some times (it may be at all times) uninteresting to some children?

The "Application to Religious Training" of the psychological principles seems to be based upon this dictum:—"Little children are *en rapport* with the spiritual world; they only require to hear of its mysteries that so they may enter in to possess them. Their credulity and trustfulness are keys to unlock secrets 'that are hidden from the wise and prudent, but revealed unto babes' by their converse with the mysteries of life" (p. 24). This Wordsworthian view of the angelic nature of babies has always seemed to the reviewer to imply that the nearer a baby boy grows to becoming an archbishop the less he knows of the spiritual world. Primitive credulity is the seed-bed of error; it is experience and reflection that are the parents of truth—as Mr. Dix himself says:—"Only with the growth of knowledge is discrimination made [by the child] between things hurtful and beneficial" (p. 25), and this only after guidance and training.

The Rev. H. A. Lester, M.A., Director of Sunday school work in the Diocese of London, writes a short introduction to the book, in which he strikes the true note for religious as for all teaching:—"What Maeterlinck says of bees is especially true of children: 'It is with them as with all that is deeply real; they must be studied, and one must learn how to study them'... [The teacher's] function is not merely to teach books or subjects, no matter how sacred, but to teach children."

PUBLICATIONS RECEIVED.—*The Journal of Education, The Educational Times, The Training School Bulletin* (U.S.A.), *The Parents' Review, Educational Review* (U.S.A.), *School and Life* (Russia), *L'Intermédiaire des Educateurs* (Switzerland), *The Journal of Educational Psychology* (U.S.A.).

From the National Society:—*The Making of the Bible,* by K. L. M. Rowton, pp. 365, price 1s. 6d. net; *The Good News of Christ,* by A. A. Hilton, pp. 291, price 1s. 6d. net; *More Stories for the Sunday Kindergarten,* by Hetty Lee, M.A., and Sybil Longman, pp. 211, price 1s. 6d. net; *The Church's Book of Days,* by Sybil Longman, pp. 347, price 1s. 6d. net; *Graded Course of Religious Instruction in Day Schools,* pp. 38, price 7d. net.

Child-Study.

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The Scope and Methods of Experimental Education.

By James Drever, M.A., B.Sc.

In preparing the way for a discussion of this topic, I should like, first of all, to call attention to the general nature of the subject matter, which ought to be studied by the new experimental science, which has—unfortunately as I think—been named "Experimentelle Pädagogik" by the Germans. There is still a disposition in some quarters to deny that there is any new science that can be so named, and to assert that the subject matter claimed for this, as they conceive it, pseudo-science is already studied by other existing sciences, by psychology, by physiology, by anthropology, and so on. This assertion of course, cannot be denied, but it does not involve the conclusion such people attempt to draw from it. The new science proposes a clear and definite aim or end, which is the aim or end neither of psychology, nor of physiology, nor of anthropology, and in virtue of this aim or end the subject matter is arranged, organised, and developed in a new and characteristic way. This is the fundamental principle upon which we base the plea for the recognition of the new science. But there is a second and subordinate principle which enables us to distinguish the new science from the others. Its starting point, which is as definite and distinct as its aim, is in the problems arising in connection with the practice of education, and this again is the starting point of none of the other sciences.

It is true that our new science owes a great debt to those other sciences, which have been working for a long time in the same field, though from a different point of view. More especially does it owe a deep debt to psychology. But in acknowledging the debt, we must not blind ourselves to obvious distinctions. We may even claim that certain fields, in which the other sciences have hitherto been working, and again I am thinking mainly of psychology, must now be regarded as definitely belonging to the new science. Psychology has of late years extended its activities so widely as almost to lose its own identity, and as a science will certainly not suffer from this limitation of its sphere.

A very good instance of the kind of thing we refer to is the General Intelligence Test or the Binet Tests, used either for classification or for diagnosis purposes. These, so employed, have very little place in pure psychology; from the point of view of pure psychology they are in fact almost meaningless. I do not mean to assert that they may not be employed to throw light on purely psychological problems, as, for example, the problem of the nature of "general intelligence," but that is a different matter. As ordinarily used they have no right to be regarded as coming under even practical or experimental psychology. We might as well regard the practical work of teaching in the classroom as practical psychology. The truth is that the Binet Tests and General Intelligence Tests, as ordinarily used, do not belong to the science of psychology nor to any of its branches; but to the new science of Experimental Pedagogy, and a service will be rendered to the science of psychology itself by the recognition of this fact.

There is one other introductory point. If the position we have taken up is sound, the term "Educational Psychology" ought now to be entirely abandoned for two

reasons, one applying to a legitimate, the other to an illegitimate educational psychology of the past. The work of the legitimate educational psychology has been taken over by the new experimental pedagogy or education. Psychology is psychology, and experimental pedagogy is experimental pedagogy in virtue of their entirely different points of view, and there is no room for an educational psychology between the two. There was never any justification for the illegitimate educational psychology, for a psychology merely boiled down and simplified, in order that it might be assimilated by the relatively feeble minds of those who teach our children. This educational psychology really received its quietus long ago. If psychology is of any practical use at all, if there is any individual on the face of our planet who needs to know psychology, and know it thoroughly so far as he does know it, it would seem to be of service in education, and that individual would seem to be the teacher. But we must not palm off on the teacher a thing called educational psychology with the psychology left out, because, forsooth, it is too difficult and too subtle for him to understand. These statements are made from a desire to make our position clear on such fundamental points at the very outset.

Taking this view, then, of the position and nature of experimental pedagogy or education and its relations to other sciences, especially psychology, let us endeavour, in the first place, to determine the main topics with which our science ought to deal, and in the second place to give some account of the chief methods of attack, which it will naturally adopt in the face of the problems arising in its field. Thereafter we shall find some illustration of the topics and methods in experimental work which has been or may be done in the class-room or in the laboratory.

I. The main topics with which experimental pedagogy must deal, appear to be four.

1. The development of the child by means of education, and independent of education, so far as that can be studied experimentally, under which we may include scientific observation and statistical treatment of data.

2. Individual differences in children which bear upon the process of education.

3. Mental tests, including Tests for General Intelligence, Binet's Tests, etc., when used in the service of an educational end.

4. School processes, school subjects, and school methods.

The last (with which we are more especially concerned at present) must become the main and central topic in the experimental pedagogy of the future, since study and investigation in every problem under each of the other topics, finds here its issue and application. Nevertheless it is the topic which up to now has been least diligently studied. Under this head would come all more or less general study of the learning processes, the study of reading, writing, arithmetic, drawing, and other school subjects, and the comparative study of various methods of organisation, of teaching, or of presentation. Moreover, since experiment is but systematic observation under carefully arranged and controlled conditions, school work itself may be regarded as in the nature of scientific experiment, provided we carefully observe and record conditions, procedure, and results.

II. Turn now to the methods of investigation which may be employed. *In the first place experiments will be either individual experiments or group experiments.* As between these, the problem itself will in general determine the method to be employed, but one and the same problem may often be approached by both methods, and each has its own characteristic advantages. The characteristic advantage of the individual method is that, by means of introspection, we can keep a record of what is going on in the mind of the subject, and in some cases our experiment is quite valueless without such a record. The characteristic advantages of the group method are, first of all, that we can get by its means a large number of results for

comparative purposes; and, secondly, that we can better institute comparison, trace uniformity and diversity, when a number of results have been obtained simultaneously and under presumably the same conditions from a number of different individuals. Group experiments are thus specially suited to the experimental needs and conditions of the teacher who desires to carry out experimental work in the class-room.

A second classification of experimental methods may be made into analytic and synthetic. In education we are concerned with a number of extremely complex processes. Logically the first step in experimental work ought to be the analysis of these complex processes. The first analysis is in the main psychological. But when we have obtained the results of such an analysis as a mere enumeration of the factors involved, the experimental work proper begins in the investigation of the part played by each factor in the complex process. The isolation of factors and the control of conditions, so that each factor may be independently studied, are always the general problems which analytic experimentation must face. The best examples of such analytic procedure are to be found in connection with the study of reading and writing to which we shall return later.

In the synthetic experiment we utilise the results of our analytic work. Analytic experiment is therefore logically prior to synthetic experiment, but it would be foolish to delay all synthetic investigation till our analytic investigation is complete. Nevertheless, just because our analytic investigation is still in many cases far from complete, synthetic experiments differ very greatly in their value, and their results are in general to be distrusted unless we can be reasonably certain that we are really controlling all relevant conditions. It is at this point that the need for analytic work is most felt, for what on *a priori* grounds appears an important and fundamental condition may really be of quite negligible account, while what is apparently an almost negligible condition may be found in practice the most important of all.

In this connection there is one point deserving of some attention. Mere random experimentation with complex processes is of very little value, indeed can hardly be called synthetic experiment at all. The true synthetic experiment is always undertaken to verify some hypothesis, which has generally been formed on the basis of previous analysis or analytic experiment.

There is a third possible classification of methods into laboratory methods and class-room methods. The pedagogical laboratory is the only place where certain problems can be satisfactorily studied, since they demand not only laboratory training, but also laboratory equipment and apparatus. There are other problems which can be studied only in the ordinary class-room. There are still others which must be studied both in the laboratory and in the class-room from points of view and in aspects which are complementary to one another.

Again there is a point which demands attention. There is a fairly prevalent opinion, encouraged by some who ought to have known better, that the class-room experiment can be quite satisfactorily carried out by the ordinary teacher without any special experience or training in experimental work. It will be a disaster of the first magnitude for the new science if this opinion is allowed to prevail, at any rate as thus stated without qualification. The ordinary untrained individual may, of course, perform experiments and get results, but unless the experiment is the mere repetition of some simple test in which it is practically impossible to go wrong, and such are neither very many nor very valuable, the results will be as crude as the methods and unreliable through and through. The difficulty does not consist so much in the method of carrying out the experiment itself, though even this requires training, as in the determining of the conditions which are likely to affect the results. It is in this regard that lack of training and experience al-

ways shows itself. For example, nothing could apparently be simpler than to carry out a series of fatigue experiments, using simple addition sums as the test; yet few things are more difficult than to get reliable results in such an investigation owing to the number of factors which come into play, and the manner in which these affect the results. Hence unless the class-room experiment, as much as the laboratory experiment, is carried out by a properly trained experimenter, the results can hardly be expected to advance our science, and will only tend to bring it into disrepute. And hence the need for the training of at least a few teachers in our training colleges or elsewhere in the methods of experimental work in education.

There is a general, though not quite universal, relation between the various methods as classified in these three different ways. Analytic methods are usually individual, and at the same time laboratory methods, synthetic are in the main group and class-room methods. At the present stage in the development of our science, as we have already indicated, a large part of the ordinary work of the class-room may be regarded in the light of synthetic and group experiments. Carefully compiled statistical data obtained in this way, when the various conditions of work are clearly discriminated and carefully recorded, would constitute an exceedingly valuable body of information for the worker in pedagogical science, the teacher as well as the laboratory worker. This is the part of our work which the experimental school must especially undertake.

One other general remark falls to be made here. While the problems of our science may be studied in these various ways and by these various methods, only some of which can find a place in the ordinary class-room, the problems themselves ought in all cases to have their origin, directly or indirectly, in the work of the class-room. This was the second of the fundamental principles by means of which we were enabled to differentiate our science from other existing sciences. It is well known, and has often been lamented in the past, that the teacher, the very person who most needs a knowledge of psychology, is the very person who fights shy of psychology, who even denies its value in the class-room. The reason is not far to seek, and is very significant for our science, which not only ought to appeal to the teacher, but which also depends so largely on the teacher for its development. Theoretically psychology must necessarily underlie a great deal of the work of education, but it is not always easy to translate its recommendations into practical terms. The psychologist's problems are psychological problems and their solutions psychological solutions, which means that both problems and solutions are regarded from the point of view of a theoretical science and with reference to the laws and principles of that science. On the other hand the teacher's problems are practical problems demanding a practical solution, and to pass from the psychological solution to the practical solution demands first a complete and by no means easy change in the point of view, and secondly a reinterpretation in concrete individual terms from this new point of view, even supposing the problems themselves are the same, which is rarely the case. Starting from the teacher's problems we must necessarily reach a solution which is capable of direct translation into terms of practical method. It is a radically wrong conception of experimental work in education to think of the problems and their solutions as originating in the laboratory, and, as it were, imposing themselves on the teacher in the form of school methods. The laboratory can never yield us a school method in its practical setting.

It is true that we may be led in the pedagogical laboratory to investigations which have no direct and obvious relation to school practice. This may happen in two ways, but neither violates the principles we have enunciated, that our work must find both its origin and its issue in the problems of the practical teacher. On the one hand, the course of analysis may lead us step by step to problems which seem very remote

from the practical problems with which we started, but in such a case it is merely failure to perceive the intervening steps that makes our work appear to violate these principles. Or, on the other hand, the laboratory may carry the experimental study of school processes farther than the immediate necessities of the case seem to demand, for the sake of a more complete understanding of the various factors, and in the hope that such understanding may lead ultimately to the betterment of school practice. This again seems legitimate enough, despite the fact that the hope will no doubt often be doomed to disappointment.

III. With this somewhat lengthy, but still only preliminary, consideration of the methods of experimental work in education before us, we may go to the actual work of the school, in order to illustrate the principles we have laid down, and in order to indicate some of the problems which will arise in the class-room in connection with school subjects and methods, some of them to be solved also in the class-room by the teacher himself, and some to be solved only in the pedagogical laboratory.

We may profitably begin with the school subject of reading. Reading illustrates admirably the nature and the function of the class experiment, as well as its limitations. We have before us at the present time two groups of methods of teaching reading, the one group laying chief stress on a synthetic mode of procedure, the other on an analytic. Each method has its own enthusiastic advocates, all of whom proclaim that there is conclusive evidence of the superiority of their respective methods. It ought surely to be possible on the basis of experiment to come to some decision regarding these claims. Some may be disposed to hold that this question has been already determined, but the mere fact that different methods are put forward as in the happy position of being proved superior to all others, is sufficient evidence against the contention from the supporters of any.

The obvious way of settling such a dispute seems to be by the trial of one method against another, using some modification of Winch's method of equivalent groups. But this obvious way is not so easy as it looks, nor as some experimenters have assumed it to be. For, in order to ensure the success of our experiment, certain sources of error must be guarded against. In the first place we must be sure that our teaching of reading by any method begins at the beginning, since it is in the method of approach to reading that the dispute arises, as between synthetic and analytic methods. But beginning at the beginning may present some difficulty. A very considerable proportion of the experimental work done in the solution of this problem is characterised by the assumption that the teaching of reading in the school starts necessarily from the beginning, an assumption which is, I believe, erroneous in at least fifty per cent. of the subjects employed for experiments. If children already know their letters, not necessarily in a perfect way, but to any degree, before the test begins, its result, whatever that might be, cannot be relied upon to settle the dispute in favour of either a synthetic or an analytic method of approach to reading, since, whatever method is employed, the method by which the children have learned is in the main synthetic up to a certain point, and it is impossible to say whether that point is a critical point or not. Hence the first stage in our experimental comparison of any two methods of teaching reading would seem to be to determine as accurately as we can the starting condition of our material. Unfortunately this first stage has been too often neglected.

When we have surmounted this first difficulty, and determined with reasonable accuracy the starting condition of our material, we are faced by a second difficulty. This material must be arranged in practically equivalent groups for the purposes of the experiment. This also, under the conditions demanded by the experiment, is by no means an easy task. For we must remember that the equality we require is equality as regards a particular

learning process, and testing at the outset on the basis of that process itself is excluded. Hence we must employ some processes other than that we are studying as a basis for the preliminary grouping of the children. Whether this consideration is important or not, it is impossible to say without careful investigation directed towards clearing up this very point. The necessity of some such investigation is also indicated by results obtained by Dr. Valentine. In experimentally comparing the Look-and-Say with the Phonic method of teaching reading, employing Greek characters, he found that the Phonic method was distinctly superior in all cases save one, and curiously enough that was a class of dull children.

These difficulties are cited in order to show the kind of precautions which must be taken in this kind of experimental work, and at the same time to prove that even in regard to the method of teaching reading, though a considerable amount of experimental work has been done, a great deal still remains to be done. In the same connection there is another important problem which requires study, and that is the relation of any method of teaching reading to the teaching of writing. I have elsewhere (*Child-Study,* March, 1914) tried to show that it is a mistake to consider reading and writing in isolation from one another, that they are in fact the two aspects of one thing, and that thing, graphic expression. Here we evidently have a case where experimental work is urgently required, experimental work that ought logically to be carried to a conclusion before we begin our experimental investigation of the methods of teaching reading. Without such work we must not only remain in ignorance of the real relations subsisting between the learning of reading and the learning of writing, but we cannot even decide definitely in favour of any method of teaching either reading or writing.

Analytic investigation has made considerable progress in the case of reading, and there is already a fairly large mass of results available. Very careful study has been made of visual perception in reading, of the conditions which determine our recognition of words, of eye movements in reading, of the varying rates of reading and the relation of rate of reading to apprehension of meaning and permanence of retention, of the inner speech which accompanies reading in most individuals, and of the lip movements or subdued articulation found in many. In fact one might almost say that there are few new problems in this field. But in saying so, we must guard against giving the impression that nothing remains to be done. The truth is that some of the main problems, and the most important for their practical bearing, to which the most careful and patient study has been devoted, are still in a large measure unsolved. This is notably the case as regards the conditions which determine our recognition of words in reading. Nor can it be said that work in the class-room has ceased to be relevant to, and serviceable in the solution of this problem, though it is true that the greater part of the work must now be done in the pedagogical laboratory with the tachistoscope. A careful study of the kinds of errors made in reading would undoubtedly throw light upon the conditions determining recognition of words. Similarly it is possible for the teacher to make some contribution to our knowledge of the various rates of reading among children, the causes of the differences between individuals, and the relation between rate of reading and apprehension and retention of the matter read. The effect of silent reading and reading aloud on rate, apprehension of meaning, and retention offers still another fruitful field for the teacher's work.

It must, nevertheless, be freely admitted that the greater portion of the analytic work is laboratory work. The main problem for the laboratory at present is this very problem of the conditions determining our recognition of words. It is now many years since this problem first emerged in the form of the question : "Do we read by individual letters or by word-wholes? " and the problem has not materi-

ally altered its form even to-day. To begin with, abnormal psychology claimed to be able to say definitely, from its study of cases of aphasia and allied conditions, that we do not read by individual letters, but by word-wholes, and the earliest experiment seemed to confirm this conclusion. Subsequent experimentation has, however, raised doubts whether this is a complete and adequate statement of the case. First of all it was shown that, in the recognition of the total word form, certain characteristic letters or letter groups played a dominant part. More lately it has been maintained that a comparatively vague apprehension of the individual letters constitutes the first stage in the recognition of the word, the letters being simply apprehended as groups of letters without any definite order, and the word being later recognised as a whole when the meaning, as it were, comes along and arranges the letters in their proper order of succession in the word as recognised.

Thus the laboratory may be said to have at the present time two problems before it in place of one, the original problem in a somewhat altered form, and the problem of determining the part played by the context or meaning. It will perhaps make these points, as well as the whole situation, clearer if I describe some work which we have been engaged upon in our Edinburgh laboratory during the present session. Results cannot be given, because as yet there are few definite results to give. We are attacking the original problem by seeking to determine what changes can be made in a word, maintaining on the whole the letters of the word, but altering their order or even leaving out or adding a letter, without the word ceasing to be recognised under the conditions of tachistoscopic experiment with an exposure time of about a fifteenth to a tenth of a second. We note also words read by mistake. Thus we expose " deblireate " for " deliberate," " rcegintoin " for " recognition," and so on.

As regards the second problem we have found it a very difficult matter to determine the effect of the context. We are able by a comparatively simple arrangement to expose in the field exposed by our pendulum tachistoscope the context of a word about to be exposed. When the subject has read the context he himself makes the exposure by switching off the current actuating the magnet which is holding up the pendulum. Thus the word appears momentarily in the field previously occupied by the context, and is replaced by the context again. One apparently curious result was got very early in the series of experiments, viz., that the exposure of the context beforehand impeded the recognition of the word. This result, though we did not at the time know it, had been previously got by Dodge, and the explanation given by him is probably the correct one. He thinks that under such conditions the field of vision has no time to clear up for the second presentation. This would indicate that there is an absolute limit to the increase of rate in reading, so long as all the words are read, and that such a limit can be determined. Whether it is constant for all individuals and at all times are further problems. This result has naturally compelled us to modify the experiment, and at present we are working in two different ways. We either keep the exposure time at a fifteenth to a tenth of a second and employ a context which is heard and not read, or we increase the time of exposure to about an eighth of a second, and so allow the field of vision to clear up.

This brief notice of actual experimental work ought to make clear the general nature of laboratory work so far as reading is concerned. It has also indicated the manner in which one problem leads on to another. *We may now turn for a brief space to the consideration of writing, under which we must include spelling or orthography.* Here the conditions are somewhat different from those prevailing with regard to reading. We can still say that a great deal of experimental work has already been done, though nothing like the amount done in the study of reading. But there is a far larger part of the ground

still unexplored, and the work done has neither been so successful and fruitful, nor has it defined the problems still remaining so clearly.

Analytic work in the study of writing must be mainly laboratory work, and we have dealt with the analytic study of writing in the laboratory (*Child-Study*, March, 1914) and need not repeat the discussion here. Still there are some analytic problems on which light may be thrown by class-room experiment. This is more particularly true of spelling. To supplement our tachistoscopic study of visual perception in reading, which has also an obvious bearing upon spelling, we require a careful study of errors in spelling, and their classification. Some work of this kind has already been done, but there is still much to do. The aim of this study and classification of errors in spelling is to get at the sources of error, and in so doing determine the factors involved in spelling. It might be suggested that pedagogical laboratories, where they have been established, should act as "clearing houses," if we may use the expression, for errors in spelling, and that all teachers should make it a point to send in all specimens of spelling which may seem to them important for the advancement of our knowledge of the underlying processes.

The rate of writing, and the phenomena which manifest themselves with increase or diminution of the rate, might also be usefully studied, and again the work in the class-room would undoubtedly prove invaluable. Finally in the problem of the standardisation of writing the teacher can do excellent service. The problem is to devise a means by which we can determine quantitatively and objectively the quality of handwriting. We must first of all come to an agreement with regard to the characteristics of handwriting we are going to employ for this purpose. Ease in production, or writing rate, and ease in reading, or legibility, are obviously two of the factors to be taken into account, and it ought not to be difficult to measure the quality of handwriting in objective terms, if these are the only factors. Unfortunately, however, there is a third factor, neatness or pleasingness to the eye, and if this is an independent factor it complicates matters considerably, for it is essentially based on subjective opinion, and it is impossible to see how it can be reduced to objective terms. Thorndike has attempted to meet this difficulty by getting a great number of individual estimates of the quality of handwriting, and then forming a scale, which is something of the nature of a composite photograph of these various estimates, by means of which writing can be measured, as we measure anything by means of a scale. There is another scale (the Ayres scale), simpler, and on a slightly different, though essentially similar, basis. Now it is questionable whether agreeableness to the eye is an independent characteristic of handwriting, and it has certainly little to do with the function of writing as such. Leaving that out of account, the chief difficulty is in the determination of legibility. Quite recently a good suggestion has been made by Starch, which we are at present testing. Starch suggests that we take a disc of white cardboard, and cut out of it three circles about three or four centimetres in diameter. We determine legibility by placing this down on the writing and reading the letters exposed through the circles. Three readings are taken, and the mean expressed in letters read per second is taken as a measure of legibility.

In both writing and spelling there is room for a great deal of synthetic work. One important problem to be solved in this way emerges in connection with the process of learning to write. It is known that there are considerable differences between pen and pencil writing. Now the child often makes the approach to pen writing through pencil writing, and it is important that we should know the exact effects of this on subsequent pen writing, that such approach be compared with approach through writing, say, with a brush after the fashion of the Chinese writing instrument, and with direct use of the pen from the start. Another point calling for investigation is the advisability of beginning writing by printing the letters.

Spelling affords no less excellent oppor-

tunities for synthetic work, and a considerable amount of such work has been done by various investigators. The most interesting problem in this connection is perhaps the part which the motor factor plays in spelling. Most adults will probably agree that they spell with their fingers, and that the visual factor only comes along to verify what has been written. But it is strongly held by many workers that the visual factor is ultimately the real control in spelling. It is certainly true that very many individuals, perhaps the great majority, appeal to the visual image of a word whenever they are in doubt. It might be argued that in such cases they are not quite masters of the word graphically, that it is not in their graphic vocabulary. Further, it can be easily shown from the result of tachistoscopic experiments of the kind already noticed that the visual image of the word must necessarily be a very unreliable control in a great number of cases. Hence the question arises whether we are acting wisely in emphasising this visual factor, as we do, in the teaching of spelling, and neglecting the motor factor.

This seems again a question which experiment, and only experiment, can answer, but not so easily as appears at a first glance. The difficulty is, that, with our ordinary method of teaching reading and spelling, the visual factor is emphasised from the outset, and motor experiences tend to be expressed in visual terms, whenever we have to do with the writing of words. If, therefore, we take a class, say, of nine or ten years of age, and attempt to emphasise the motor factor, we have no guarantee that we are really emphasising the motor factor, for the children may be expressing their motor experiences in visual terms. For example, we may endeavour to impress the word in motor terms by making the children write it over and over again on the desk with the finger or the wrong end of pen or pencil, and all the time they may be visualising the word as they write. This is, I believe, the explanation of many inconclusive experiments in the teaching of spelling. Hence for any such experiment we must have introspection as a control, and, to give the motor factor fair play, it must be emphasised from the outset, as, for example, it would appear to be in the Montessori Method.

The attempt to settle the matter in dispute between the visual and the motor factor by working with unintelligible or nonsense material has really little or no bearing upon spelling, since it neglects the language function of writing, that is the expression of a meaning. This factor makes the experiment less simple to carry out, but it appears to be an essential factor if the experiment is to answer the question put. The phonetic element in spelling also demands investigation, and again such investigation may lead to the emerging of many interesting and important problems bearing upon reading as well as spelling.

A word about arithmetic must close this discussion of the experimental study of the school subjects. In this case the results of experimental work are exceedingly meagre, and the problems for experimental investigation can hardly be said to have defined themselves as yet. Some light has been thrown on arithmetic by the use of arithmetical operations in the study of various more or less general problems such as work, the transfer of training, and the like. The direct study of arithmetical processes for themselves, however, can hardly be said even to have begun. Some recent work by Dr. Brown on mathematics, and some still more recent work reported by Mr. Scott at the College Clubs' Conference in Edinburgh, in May, 1914, indicate lines of investigation which are well worth pursuing, and which are likely to yield good results. At any rate there is ample room for work both in the class-room and in the laboratory in the defining of the problems and the study of the problems involved in the teaching of arithmetic.

There are a number of processes which might be called " school processes," the experimental study of which might have been noticed in this paper, but the space has already been fully occupied. Some of these processes, like learning itself in its

various forms, would require a paper equally long for their adequate discussion, and it is therefore better to leave them entirely alone at present. Enough has been said to show the extent of the field of experiment in the various school subjects, and, it is to be hoped, also the nature and fertility of the soil.

Binet's Mental Tests; What they are, and what we can do with them. VIII. (*continued.*)

By W. H. Winch, M.A.

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Binet's Fourth Test for Nine-year-old Children is an exercise in Definition. He does not consider this test at any length among his nine-year-old exercises; since, as he says, he has dealt with the matter before. The same, or similar questions, are asked as in a previous year; but in order to "pass," the type of the definition given must show advance; it must be a definition *superior to a definition by use.* For example: "A chair is to sit on" will not "pass" for nine years of age; nor would "A horse draws carts" be regarded as satisfactory. But if the definition contains an element of classification or description, as, for example, "A horse is an *animal* that draws carts," it will pass. At seven and eight years of age, Binet says, half the French children give definitions superior to those of usage; at the age of nine they can all do so.

This test of definition was carried out with the six and seven-year-old children of the three infant schools already referred to. The experimenter asked the child successively: "What is a fork?" "What is a father?" "What is a chair?" "What is a horse?" "What is a mother?" The child was considered to have passed the test if he gave three definitions, *superior to those of use,* out of five.

At the age of six, only twenty per cent. of our English children were successful. The following are some of the best definitions given by the six-year-old children of the "intermediate" school:—

A Fork. 1. A thing made of iron what you use to pick up your dinner with. 2. A thing with three lines in the middle of it, what you pick up your dinner with. 3. A thing with a handle and three points, and you pick up your dinner with it.

These answers are all accepted by me as satisfactory. The word "thing" contains some element of classification, and I was doubtful for some time whether to accept "thing" as a satisfactory classification for the purpose of "passing" this test. But it seemed to me too vaguely applied by children, and indeed by all of us, to be of much value as a classification concept. Yet I have passed these children. I have done so, not for their classification, but for the elements of *description* which their definitions contain.

A Mother. 1. A lady what gives you your food. 2. A lady that keeps you. 3. A woman what looks after you and keeps you.

These definitions of "mother" all pass. They contain classificatory concepts, "lady" and "woman," which are quite satisfactory.

A Chair. 1. A thing with a seat and a back and four legs, what you sit on. 2. A thing made of wood; it is hard and strong, and we sit on it.

The same difficulty in assessment arises with these definitions of "chair" which we found to exist with the definition of "fork." Are we to accept "thing" as a classification? I decided not to do so, for the reason previously given. But the objection is not important, as far as these children are concerned, for each of their definitions "passes" on another count; they contain *elements of description.* I repeat these important considerations so as to make them clear, for I know that some teachers have been a little doubtful as to the criterion to be adopted for the nine-year-old standard of definition. A definition which simply states "use" or "function" does not pass; but, if it contains a classification (excluding "thing," which is too vague), or some elements of description, it does. For instance, "A chair is to sit on" does not reach the nine-year-old standard.

"A chair is a thing to sit on" likewise fails; but "A chair has a back and four legs" and "A chair is made of wood" pass for their elements of description. Better still is "A chair is a piece of furniture," etc.; but I need hardly say that we do not meet with this form of the definition among six-year-old children.

A Horse. 1. An animal what gives you a ride. 2. An animal what goes in a cart and it's got four legs and two ears. 3. An animal what you sit on and what has got four legs. 4. An animal what pulls carts along with straw or anything in it.

All these definitions "pass"; the second on two counts: for its classification "animal," and for its descriptive elements, the "legs" and "ears"; the third for its classification "animal" and for "four legs"; and the fourth also for its classification "animal." The child in the fourth definition is not asserting that the horse only pulls carts when he has straw or something else in him, though grammatically, I suppose, he does assert this; "it," of course, means carts. There is another interesting point in connection with these four definitions. Two of them contain definitions of usage: the horse "gives you a ride," and is "what you sit on"; and two of them contain definitions of function, which, in a former chapter, I have distinguished from those of purpose or use to us.

The second definition contains "what goes in a cart," and the fourth contains "what pulls carts along." Both these are functions of the horse, and they are *not* stated as the horse's use or value to us. But they are not superior definitions to those of use; in many cases they appear before the purposive aspect is realised. So that "use" and "function" must both be understood as failing to satisfy a high standard of definition.

A Father. 1. A man who goes to work and earns money. 2. A man who goes to work and brings home money.

Both these definitions contain an element of classification, namely, "man," and are acceptable on that ground.

At the age of seven years, the definitions were not very markedly superior to those of the six-year-old children; but the "well-placed" school led the way easily. The following are examples of those given by seven-year-old children in the "intermediate" school:—

A Fork. 1. A thing what we eat our dinner with. 2. A thing what you pick up your dinner with. 3. A thing with three prongs and a black handle. 4. A thing what you pick up your fish with. 5. A fork is a table thing, and we eat our dinner with it. 6. It has a handle, and it goes round at the bottom. 7. It's got prongs that stick up, and you dig it into the meat. 8. It's a thing with three prongs, and two pieces of flat wood, and two lines down the sides. 9. I knew, and I've forgotten it. It's for eating with, isn't it, and it's got a handle and some long things at the end, hasn't it?

Some of these are first-rate definitions for seven-year-old children, and are quite up to a nine-year-old standard. Numbers eight and nine are very good, and the fifth achieves a quite unusually advanced classification in calling a "fork" a "table thing." Numbers one, two, and four do not reach the nine-year-old standard, for they contain only the classification "thing" (which is not accepted) and an element of purpose or use to us, but no items of description, and no satisfactory classification.

A Mother. 1. A lady who works. 2. A woman who keeps you well. 3. A lady who feeds the children. 4. A lady who looks after you. 5. A lady; she's got a white blouse on, and a black skirt, and she works. 6. A lady who gives us things that we want, and buys us our dinner. 7. A lady; she's got eyes, mouth, nose, fingers, and she works. 8. One of our parents; they keep you. 9. A lady who cuts our bread, and gives us our tea. 10. A mother is a lady who has babies when they are just born.

Many of these are excellent definitions for seven-year-old children, and easily attain the nine-year-old standard. The eighth and tenth definitions are quite remarkably good; "parents" is the best

classification that can be made, and the limitation of the class "mother" by the clause "who has babies when they are just born" is admirable.

All these definitions "pass," for they all contain good classifications; but I have not, be it remembered, given examples of other and lower types of definition given by seven-year-old children.

A Chair. 1. A thing what we sit on. 2. A thing what you sit on, and it's got four legs. 3. A thing what you sit down to the table on. 4. A thing what you lean against, and sit on, and it's got four legs. 5. A chair has four legs and a seat and a back. 6. We sit on it, and it's got a square seat, and it's got a back. 7. It's got a back, and four legs, and a rod that goes in the front underneath, and a rod that goes across it, and two rods at the sides. 8. A chair is a chair, isn't it? It's got four legs and a seat with some holes in it. Some have got straight pieces across, and some have got round pieces, and some have arms.

If we decide, as in previous cases, not to accept the classification "thing" as satisfactory, we shall assess several of these definitions below the nine-year-old standard. Definition by use or purpose is also ruled out. But there are several of these definitions which easily pass by virtue of their descriptive elements. The seventh and eighth are especially good. I cannot understand why definition eight starts with a mere tautology, even though expressed in the form of a question. Probably the child was thinking, and, like many speakers of an older growth, filled in with verbiage to gain time.

A Horse. 1. An animal what pulls a cart along. 2. A mare who pulls carts along, and goes to the coal factory or to the market. 3. An animal with two ears and two big eyes, and he eats chaff. 4. An animal; he runs and pulls carts along, and has four legs.

There are, apparently, fewer advanced definitions of "horse" than of the other terms which have been defined. The first, third, and fourth definitions are acceptable on Binet's nine-year-old standard; but the second is scarcely so, the classification is too faulty. A mare is a horse, but a horse is not a mare. There are some descriptive elements, but the other elements are functional and less advanced.

A Father. 1. A man who goes to work. 2. A man who goes to work to get money. My dada goes to the market to buy the meat on Saturday night. 3. A man with whiskers and he goes to work. 4. A man who goes to work and earns money; he works at boilers. 5. A gentleman; he goes to work all the week and stops at home on Sundays. 6. A man who gets you your living.

All these definitions reach the nine-year-old standard, for they all contain a good classificatory term, either "man" or "gentleman." In addition, some of them contain functional elements, and one of them, the sixth, an element of use or purpose. The one element of description, "with whiskers," given in the third definition, is not a very successful one. It is, perhaps, worth noticing, as we did with younger children of the same school, what good fathers these little ones seem to have. They may not perform the whole duty of man; but no inconsiderable portion of it is a habit of industry, and of provision for the needs of their families.

But we must not forget, though the selection of a few good examples tends to make us do so, that seven-year-old children, even in our "well-situated" school, cannot, as a rule, give such definitions as these. I doubt very much whether children of eight of nine would normally be successful; but for the present, pending the presentation of further evidence from senior schools, I retain this test of definition as a nine-year-old test in agreement with Binet.

Binet's Fifth Test for Nine-year-old Children is a test in Reading and Substance Memory. He refers us to the passage of prose which he used for his eight-year-old test, and the instructions given in connection with that. One advance is required for the nine-year-old standard: the child must now, in order to "pass," not only read without stumbling or hesita-

tion, but he must remember *six* facts, instead of two, as in the previous year.

Binet says of his results: children of eight are capable of reading the passage, but scarcely any of them can remember six facts of a piece of difficult reading matter. The actual process of reading absorbs their attention; but at nine years of age almost all of them can remember the required amount.

The reader will remember that our English results for the previous test differed considerably from those of Binet. Our children could not "pass" in reading; but they remembered what they had read, or had tried to read, much better than the French. He will also remember that, whilst criticising Binet's analysis of the passage into memory units, I adopted it with our children for the purposes of comparison.

At the age of seven very few English children passed the test, except in the "very poor" school, in which Binet's conditions were not rigidly adhered to. But the difficulty for our children lay in the reading, as before, and not in the memory of what was read. I still think, for reasons given before in connection with this exercise, that, so far as the reading is concerned, it is not a good one, and I do not recommend it as a mental test. The substance memory part of the test might well be adopted; but it should be given as an auditory test, and with the "units of memory" more carefully worked out. I have done this for whole schools with all children between eight and fourteen years of age, and hope to present the evidence some day, in a monograph dealing with Substance Memory in School Children.

Binet's Sixth Test for Nine-year-old Children is a test in the estimation of weights, and of their arrangement in order. This, he says, is an excellent test; it owes nothing to school-teaching, but depends wholly upon natural intelligence. But it is a sensorial, not a linguistic intelligence, and a child who is dexterous in the use of words may very well fail in arranging weights. The following directions are given for carrying out this exercise:—

Obtain five boxes of the same size, colour, and appearance. Then weight them so that they weigh six, nine, twelve, fifteen, and eighteen grams respectively. The exact weights may be obtained with the aid of iron filings wrapped in cotton wool. Place the boxes in a group on a table, and say to the child, "These boxes do not all weigh the same. You are to place here the box that weighs the heaviest, then at the side of it the one that is not quite so heavy, then the one that is not quite so heavy as that, then the one that is not quite so heavy as that, and here at last the lightest." Whilst saying these words, point out with your finger the places where each box is to be placed.

Each child is to do the exercise three times. To "pass," the boxes must be arranged correctly at least twice out of the three trials, and the child must not take longer than three minutes for the whole test. In our own infants' schools Binet's directions were adhered to, but with a slight modification in the verbal directions to the child. He was told to put the heaviest box there (a place on the table being indicated), the next heaviest there, the next heaviest there, the next heaviest there, and the next heaviest there. The three tests for each child followed immediately the one on the other.

At the age of six years, a few of our children passed the test.

At the age of seven years, the results were rather good in both the "well-situated" and the "very poor" school; but in the "intermediate" school the results were not, as usual, intermediate, but very distinctly lower.

As this test is a very new one to English teachers, it will be of service if I indicate rather more precisely just what the children did with it. I shall use some figures from the "intermediate" school, and tabulate first the results of the work of twenty-five children, a fair sample of all the *six-year-old boys and girls* in the school.

These little ones were delighted to arrange the boxes, even when they failed to do so accurately: none wholly failed,

though only a third of them reached the "pass" standard, which, on Binet's scale, it must not be forgotten, is a nine-year-old one.

There is one other point of interest arising from the results: the ends of the series in each case are more correctly apprehended than the intermediate cases. This

Table I., showing the weights of the boxes in grams in the order in which they were placed by six-year-old children, commencing with the box chosen as the heaviest.

Name.	First Trial.					Second Trial.					Third Trial.				
Initials only	1st.	2nd.	3rd.	4th.	5th.	1st.	2nd.	3rd	4th.	5th.	1st.	2nd.	3rd.	4th.	5th.
A.B.	18	12	9	6	15	18	15	6	9	12	18	15	12	6	9
F.B.	18	15	9	12	6	18	12	9	15	6	15	18	12	6	9
V.M.	18	15	12	9	6	18	15	12	6	9	18	12	15	9	6
J.B.	15	9	18	12	6	15	18	9	12	6	15	18	9	12	6
L.H.	18	12	6	15	9	15	18	9	12	6	18	12	9	15	6
F.A.	15	18	12	9	6	18	15	12	9	6	18	15	12	9	6
L.G.	12	18	9	15	6	18	12	15	9	6	18	9	12	15	6
E S.	18	15	12	6	9	18	15	12	6	9	18	15	12	9	6
L.S.	15	18	6	9	12	18	12	15	6	9	18	15	12	6	9
F.B.	18	15	12	9	6	18	15	12	9	6	15	18	9	12	6
G.R.	18	12	15	9	6	18	12	6	15	9	18	15	12	9	6
E.E.	18	15	9	12	6	18	15	9	12	6	18	15	12	9	6
M.B.	18	15	12	9	6	15	18	12	9	6	18	15	12	9	6
D.C.	18	15	9	12	6	15	18	12	9	6	15	18	6	12	9
F.B.	15	12	9	18	6	18	6	15	9	12	18	12	15	6	9
M.S.	18	15	12	9	6	15	12	18	6	9	18	15	12	9	6
A.J.	15	18	12	9	6	18	15	9	12	6	15	18	12	9	6
M.A.	18	15	9	12	6	18	15	9	6	12	18	12	15	9	6
E.W.	18	15	12	9	6	15	18	12	6	9	18	15	12	9	6
F.P.	18	15	12	6	9	15	18	12	9	6	18	15	12	6	9
E.T.	18	15	12	9	6	18	12	15	9	6	18	12	15	9	6
A.D.	18	6	15	9	12	18	12	9	6	15	18	12	15	9	6
E.C.	15	12	18	9	6	18	15	9	6	12	18	15	6	9	12
W.S.	18	15	12	6	9	15	12	18	9	6	15	18	12	6	9
A.D.	18	12	6	9	15	18	6	15	9	12	18	9	15	12	6
No. of times correctly placed.	18	13	11	13	17	17	9	8	11	13	19	11	14	13	17
Percentage of times correctly placed.	72	52	44	52	68	68	36	32	44	52	76	44	56	52	68

In the first trial, as will be seen from the above table, six children were quite correct; in the second trial, two children only were correct; and in the third trial, the number rose to seven. Five passed, since they were right in two out of the three trials; no six-year-old child was right in all three. The second trial produced inferior results to those of the first and third. is probably a general psychological fact common to all series, and not merely true of the perception and discrimination of weights. Only in one instance, that of the child A.D., the last on the list, were the boxes arranged without an attempt to discriminate their weights, and even in this case, the heaviest was picked out correctly by a method of discrimination,

though the other boxes were arranged without further testing.

At the age of seven the results were better, as will be seen from the following table:

two out of the three trials. The number of "passes" was not much greater than among the six-year-old children; but notwithstanding this, the improvement is really considerable, as is shown by the

Table II., showing the weights of the boxes in grams in the order in which they were placed by seven-year-old children, commencing with the box chosen as the heaviest.

Name.	First Trial.					Second Trial.					Third Trial.				
Initials only	1st.	2nd.	3rd.	4th.	5th.	1st.	2nd.	3rd.	4th.	5th.	1st.	2nd.	3rd.	4th.	5th
H.L.	18	15	9	12	6	18	15	12	6	9	18	15	12	9	6
F.D.	18	15	12	9	6	18	15	12	9	6	18	15	12	9	6
I.D.	12	15	9	18	6	15	18	12	9	6	18	12	15	9	6
T.P.	18	12	15	9	6	12	15	18	9	6	18	12	15	9	6
E.L.	18	15	12	9	6	12	15	18	9	6	15	18	9	12	6
W.P.	18	12	15	9	6	18	15	6	9	12	15	18	12	9	6
G.B.	18	15	12	9	6	15	18	12	9	6	18	15	12	9	6
T.O.	18	15	12	9	6	18	15	12	9	6	18	15	9	12	6
M.H.	18	12	15	6	9	18	15	12	9	6	18	15	12	6	9
E C.	18	12	15	9	6	15	18	12	6	9	18	15	12	9	6
L.S.	15	18	12	9	6	18	15	12	9	6	18	12	15	9	6
C.C.	15	18	12	6	9	18	15	12	9	6	18	15	12	9	6
F.L.	15	18	9	12	6	15	18	9	12	6	18	15	9	12	6
G.D.	18	15	12	6	9	18	15	6	9	12	18	12	15	9	6
C S.	12	18	15	6	9	18	15	9	12	6	18	15	9	12	6
G B.	18	6	9	12	15	18	6	12	9	15	18	15	12	9	6
E.S.	18	15	12	9	6	18	15	9	12	6	18	9	12	15	6
W.C.	15	18	12	9	6	18	15	12	9	6	18	15	12	9	6
J.C.	18	15	12	6	9	18	15	12	9	6	15	18	12	9	6
A.M.	18	15	9	12	6	18	15	9	12	6	18	12	15	6	9
R.D.	15	12	18	9	6	18	15	12	9	6	18	12	15	9	6
E.D.	18	15	6	9	12	18	15	6	9	12	18	15	9	12	6
R.G.	18	15	12	9	6	18	15	12	9	6	18	15	12	9	6
C.M.	18	15	12	9	6	18	12	15	9	6	18	15	12	9	6
L.B.	18	15	12	6	9	18	15	9	12	6	15	18	12	9	6
No of times correctly placed.	18	14	13	14	17	19	19	14	18	19	21	14	14	17	23
Percentage of times correctly placed.	72	56	52	56	68	76	76	56	72	76	84	56	56	68	92

In the first trial, seven of the seven-year-old children arranged the boxes correctly; in the second trial nine did so, and in the third trial there were also nine sets of boxes correctly arranged, whilst two of the children were correct in all three trials and five others "passed" in addition to these, that is, were successful in at least

analyses at the foot of the tables.

The outstanding difference between the six and the seven-year-old groups lies in *improvability*. In the first trial they are almost identical, but in the second and third trials the seven-year-old children show a distinct advance. It is evident that in mental testing we need to know

"improvability" as well as initial endowment; otherwise we may grade children wrongly. There *are* tests in which improvability is a very small factor, but I do not think this test is one of them. The psychological fact about the end terms and the intermediate terms of series is illustrated by the work of these children, just as it was by that of the six-year-old children.

I do not propose to "place" this test for English children until I present the results of the work for senior schools.

Parent Educators.

By Professor Bidart.

Translated by Miss M. S. Ryan, B.A.

13. *The Importance of Family Concord.* The father: "Have you noticed lately this little monkey of ours, only eighteen months old? Yesterday I told him to do something; he disobeyed. You told him to do the same thing, and he did it. To-day the contrary happened; he disobeyed you, but obeyed me. He certainly metes out to us equal service, but he seems to prefer to give his obedience to the one who goes to the support of the other, or rather to us both when we tell him the same thing, each separately."

The mother: "Yes, I have noticed exactly the same thing; and it is not the first time, it is the third time it has happened. He seems to realise that he is powerless if only we act together. Now, on the other hand, I have been struck with the change that has come over little Paul, you know, our neighbour's child. In eight days he has completely changed because his father and mother quarrelled before him. Since then, when the one punishes him, the other pets him. He is disobedient to both, in the most defiant way possible, and eight days ago he was as good as gold."

The father: "Well, just think what has happened to our friend D. He told me all about it. Leo was blamed for something by his father. The child made a face about it, and tried to seek refuge with his mother. She took no notice of him. He tried his grandfather, who is rather indulgent; he took no notice of him. He went to the maid who often plays with him; she took no notice. At last, quite upset, he cried out: 'When I am naughty no one will take any notice of me.' And in the end he had to go back in penitence to his father, and was by him forgiven."

The mother: "When the child said what he did, he was really giving the greatest possible praise to his parents."

The father: "Instead of behaving naturally and sensibly like this, how many parents there are who do not know how to help and support each other. *'Father has punished you; come to mother, dear,'* says the mother, and she pets the child who had to be punished, and thus rewards him for being naughty. *'Mother is very cross; come to father,'* says the father, and he kisses the child, and teaches him to despise his own mother. What folly and how wrong!"

The mother: "My dear, let us always work together. Whatever the one may command or forbid, let the other support it whole-heartedly. If the matter must be discussed, let us discuss it some other time and in private."

The father: "We will also ask all those who have anything to do with our child, grandparents, uncle or aunt, servants, neighbours, and even visitors, never to act in opposition to our wishes. There are sometimes amiably disposed people who give the child forbidden sweets, tell him things he is not supposed to know, perhaps, with such disastrous words as these:—*'Now, mind, don't say anything to father or mother.'* They may even interfere to appeal against some just punishment. Let us try to protect our little ones against influences such as these, for they do nothing but harm."

III. *Conscience and the Will.* After having enlightened the will, we must do our utmost to strengthen it. The best means of enlightening the conscience is to explain the practice of one's duty by the idea of justice. This idea must be brought

before the child in connection with every act, good or bad, whether it is done by him or by those round about him. The realisation of the idea must be helped by insistence on the daily practice of duty, and by such teaching as will strengthen the conviction of the relation between duty and justice.

The will is strengthened by exercise; that is, by initiative in decision, by effort and by perseverance in carrying out a decision.

Thoughtlessness is checked by the habit of reflection, irresolution by the habit of decision, inconstancy by the habit of constancy, weakness by effort, and obstinacy by adaptability.

1. *Necessity of Training the Will.* "I *have broken his will,*" you say in a satisfied tone, in speaking of your boy. In other words, you have ruined your child. Pray, what is your notion of a father? A machine for breaking down characters? You might as well be a steam-roller. A broken will is a worse evil than a broken leg or arm. The child who is now under our authority will one day have to stand alone. Who will guide him along the right path? And who or what will sustain him amid the trials of life? The point is not to break a child's will, but to give him one.

"There is no need to give him one," you would say, "he has sufficient will of his own." He is self-willed, and that is precisely why we say that he has no will. To have a will is to be master of it. Now, the child is just the sport of his impulses; he does whatever he is impelled to, by his instincts, tendencies or needs. If he is to be master of himself, he must be master of his impulses.

How will he be able to get control of himself? (*a*) He must will what he *ought* to will; in other words, his will must be *enlightened* (conscience). (*b*) This enlightened will must be stronger than his evil tendencies. (This will come in time if his will is continually *assisted* by good resolutions, practices and thoughts.) (*c*) The will must be *strong* in itself, for it will continually meet with opposition. The threefold task in regard to the will is to enlighten, aid and strengthen it.

Suggestions for Study and Practice.

Learning Against Time. Two groups of girls were set to learn the following lists: "273, beat, statue, dessert, steak, weak. 732, tow, meat, waste, kernel, pair. 372, desert, week, stake, beet, statute. 723, waist, pear, toe, meet, colonel." The first group was told to take as long as they needed, but to learn as quickly as possible. The words were arranged in sets of five in vertical columns under a number, and had to be reproduced under their right number, but in any order. "The average time required by the 13 girls [in the first group] was 14min. 17sec. The shortest time was 8min. 47sec., and the longest 22min. 40sec., with an average deviation from the average of 4min. 28sec. Nine of the girls made perfect records, while the rest made from one to three errors in omissions and displacements.

"The same test was given to another group of [24] girls; but instead of giving them all the time they chose, they were told that they would have just 9min. in which to learn the list. This was practically the shortest time taken by any member of the first group tested. Ten of the 24 made perfect records, and the imperfect records were, on the whole, about as good as those of the first group. This means that when the subjects knew they had only a limited time in which to do the task, almost half made perfect records in the time in which a perfect record was made by only one of the first group, working without a time limit... The second group, though belonging to the same class, was a little inferior to the first in scholastic averages."—*G. C. Myers,* "Learning Against Time," *The Journal of Educational Psychology,* Feb., 1915.

Educational Democracy. "All the teachers of Public School, 39B, Manhattan, met and organised themselves into the Child's Welfare League of P.S. 39, in

order to assist the Principal in the broader social and educational activity, in giving to the children as much as possible of what will make life and happiness and character possible to them. After serious thinking, the following organisation was suggested for the league and unanimously adopted by the teachers. The chairman appointed a committee consisting of seven members, each of whom was to be a chairman of a sub-committee on : music, drama and folk dancing ; arts and crafts ; athletics ; social ; big brother and sister ; neighbourhood ; school. It is interesting to note that every teacher in the school requested to be on one of the committees, and many offered to serve on two or more.

" The committee on music, drama and folk dancing takes under its care all the activities represented in the terms making up its name. Belonging to this committee are the teachers leading the school orchestra, the glee club, the dramatic club, and the folk dancing league. The assembly programs are all arranged by this group.

" The committee on arts and crafts takes in charge the art club, the poster club, the brass and leather club, the fret-sawing club, and all the other industrial activities entered into. Its group makes selection of the members of the different classes according to abilities, purchases materials, arranges for exhibits, etc.

" The athletic committee supervises the athletics, organises games, co-ordinates the afternoon centre with the athletic work of the school, arranges for the purchase and presentation of trophies, and prepares and supervises athletic meets.

" The social committee co-operates with the neighbourhood committee and the music, drama and folk dancing committee in arranging entertainments for the mother and parent association meetings, welcomes the parents and other guests of the school, etc.

" The big brother and sister committee has referred to it all cases of juvenile delinquency and threatening delinquency. All habitual truants, pronouncedly disorderly boys, boys released recently from the Catholic Protectory or other reform institution, boys discharged or paroled from the Children's Court or the Bureau of Attendance, and boys living under unfortunate home conditions, are assigned by the committee to a big brother or big sister in the teaching group, who studies the boy thoroughly, his home, his gang relationships, his habits, his school performances, his ideals, his strength and his weaknesses, and makes a personal appeal to him, doing his or her utmost to gain the boy's confidences, to keep him out of further harm, and to guide him to a clean, upright life.

" The neighbourhood committee is the largest group and works along the broadest lines. It studies neighbourhood conditions, its moral influences, negative and positive ; it investigates specific cases of viciousness, of immorality, of poverty, of neglect ; it relieves cases of immediate need ; keeps in touch with outside agencies, public and private, moral, charitable and religious, co-operating with them in the suppression of nuisances, the relief of needy, the protection of children from immoral, vicious and neglectful tendencies in the home and in the neighbourhood. This committee assists in the organisation of mothers' clubs and parents' organisations, and serves as the vital connecting link between parent, child and teacher, between home, neighbourhood and school.

" The school committee studies school problems, lateness, truancy, cleanliness of building, decoration of assembly hall, corridors and rooms, takes under its control the school guards, the Pupils' Welfare League, the penny school lunch room, the sunshine club, the tripabout club, the school magazine, the school savings' bank, etc. Questions of method, of organisation of phonic material, etc., are taken up for investigation and study.

" All these activities, these interests, these broad questions of organisation, of administration, of individual and social improvement are recognised as *their* problems, *their* activities, *their* interests, *their* field, by pupils, teachers, assistant to the Principal, and Principal, working hand in hand, in perfect harmony, guided and controlled by the whole-hearted, self-

sacrificing, human end of child-happiness, or moral growth, of bodily development and mental efficiency, all depending upon social improvement and school guidance. This represents teacher initiative, individual freedom, school democracy in its broadest sense, because it is based upon the noblest ideals and aspirations of our national democracy, of our religions, and is actuated by the highest motives of child love and social regeneration."—*Nathan Peyser, Ph.D.,* "Educational Democracy," *The American Teacher,* Feb., 1915.

Testing and Training the Power of Adaptation in Defectives. "One of the most obvious characteristics of the feeble-minded is their inability to adapt themselves to changed conditions... With an idea of measuring the power of adaptation, in a very simple case, we devised some three years ago the following device, which we called for convenience 'the adaptation board.' We used for the purpose a piece of half-inch wood, 22 by 28cm. Through this are bored four holes; the centres of these are about 55mm. from the sides and 70mm. from the ends of the board. Three of the holes have a diameter of 63mm.; the fourth one has a diameter of 65mm. The whole is finished (painted, or stained) so there is no obvious difference between the two sides. A circular block is prepared, preferably about an inch thick, and in diameter it is 64mm., or such size that it will easily fit in the larger hole, but will not go into the other three.

"The method of procedure for the use of the test is as follows: The child to be tested stands at the left side of the examiner; the board is in front of them on the table, in such a position that the hole into which the block will fit is in the upper left-hand corner. Directions are given as follows:—Examiner: 'You see this block, and you see these holes. The block will fit into only one hole. Find which one.' By trial the child discovers the correct hole in the upper left-hand corner and places the block in. The block is removed by the examiner, who says, 'Do it again. Once more place the block into the only hole it will fit.' This may be repeated until the child places the block, without hesitation and without trying in any other place, in the correct hole.

"Examiner: 'Now you take the block. Now watch me carefully.' The examiner turns the board over from left to right slowly, taking about 2 or 3 seconds for the turn; then says to the child, 'Now put the block into the only hole it will fit.' Those of sufficient intelligence will place the block at once into the upper right-hand hole. Another group, however, attempt to place the block still in the upper left-hand hole, not having been able to adapt themselves in the slightest degree to the changed condition. Failing to get the block into this hole, the child tries until he discovers that it goes into the upper right-hand hole.

"The examiner now places the board back in its original position, with the large hole in the upper left-hand corner. Proceeding as before, he shows the child that the block goes in the upper left-hand hole. This being learned he again says, 'Now watch me carefully,' and turns the board at the same rate as before, but instead of turning the board from right to left, he turns it from back to front, that is the side farthest away from him to the position nearest, and says, 'Now place the block into the only hole into which it will fit.' We now have three groups: first, those who succeed promptly; second, those who fail entirely, still placing the block in the upper left-hand hole; and third, an intermediate group, who try the block in the upper right-hand hole. Apparently these last are children who are not able to adapt themselves perfectly to the changed condition, but who remember that after the board was turned before the block went into the upper right-hand corner. Not having been able to distinguish the difference in the directions in which the board was turned, they again try the block in that position...

"The total failures decrease at a regular rate from 68 per cent., at the age of four, to 0 per cent., at the age of eight. This would indicate that any child who fails on both these turns is under eight years

mentally, with the strong probability that he is only four or five."—*Henry H. Goddard, Ph.D.*, "The Adaptation Board as a Measure of Intelligence," *The Training School Bulletin*, Feb., 1915.

The Danger of Indulging Infants. "I had at first resolved to give my first boy everything which he asked, under the belief that the first promptings of nature are always good and healthy. But I was not long in seeing that children who think that they have a right to be obeyed abandon the state of nature almost at birth; they contract our vices from our example and their own from our indiscretion. I saw that, if I tried to satisfy all his fancies, these fancies would increase with my indulgence, that there must come a point at which I should be compelled to stop, and that he would then take a refusal to heart all the more because he was unaccustomed to it. I could not save him all disappointment before he reached the age of reason; so I chose the least and most transient form. Since a single refusal involves the least cruelty, I determined to refuse at once; and, in order to spare him long unhappiness, complaint, and waywardness, to make every refusal irrevocable. It is true that I refuse as little as possible, and think twice before refusing at all. Whenever I grant his requests, I grant them without conditions and as soon as he asks; and we grant them freely. But he never obtains a request by importunity—tears and wheedling are equally useless. He knows this so well that he no longer tries ... In all his disappointments he sees the power of necessity and the result of his own weakness, never the effect of the ill-will of others."—(Extract from *Julie*). *Professor R. L. Archer,* in his *Rousseau on Education.*

Notices and News.

Professor J. J. Findlay, greatly daring, proposes to hold a Summer School at Glastonbury from August 7th to 28th, 1915. It is "designed to bring together teachers engaged in many fields who have common interests in the study of educational principles and the reform of school teaching." Professors Findlay and James Shelley, Dr. J. W. Slaughter, and the Misses Alice Buxton, A. F. Purvis, M. M. Mills, Christine Pugh, and Florence Wood, will give courses of lectures. Full information can be got from Miss A. F. Purvis, Darbishire House, Upper Brook St., Manchester.

Reviews.

An Introduction to School Hygiene. By W. B. Drummond, M.B., C.M., F.R.C.P. Edin. Pp. x., 237. Edward Arnold. Price 3s. 6d.

This book is by the well-known author of *An Introduction to Child-Study,* and is a very welcome departure from the ordinary type of book on so-called school hygiene. Dr. Drummond claims that it "contains 'what every teacher ought to know,' according to my way of thinking, about the hygiene of the school-child...The truth is, as Professor Adams says, that the teacher's work begins with John. Now, everything which interferes with John's health, in school or out, interferes also with the teacher's work, and is therefore his concern. It is from this point of view, too often forgotten, that this book is written."

The following are the chief topics considered:—The study of children; the hygiene of nutrition and growth, the nervous system, exercise, and respiration; the circulatory system, eye and sight, ear, nose and throat, voice and speech, and the skin; infectious diseases in school life; the school building and playground; accidents and emergencies.

We cordially recommend the book to teachers as an admirable ready-reminder of matters which constantly need their careful attention.

Rousseau on Education. Edited by Professor R. L. Archer, M.A. Pp. xii., 278. Edward Arnold. Price 4s. 6d. net.

This is one of the "Educational Classics" series published by Mr. Edward Arnold, the other volumes at present issued being on Froebel, Locke, Pestalozzi, and Vives. They form a very valuable set of books for the student of education who is not familiar with the languages in which the originals are written. It is not too much to say that no such reader should consider that he has really studied these great educators unless he has read these volumes. It is a very different thing to read what someone thinks about what a great man has written, and to read the original for oneself and form one's own opinion on it. These able translations and wise selections bring the reader as nearly as can be to the latter and better position.

A fuller notice will be given later.

Publications Received.—*Journal of Education; Educational Times; The Journal of Experimental Pedagogy; The American Teacher; The Training School Bulletin* (U.S.A.); *The Journal of Educational Psychology* (U.S.A.); *Educational Review* (U.S.A.); *Archives de Psychologie* (Geneva); *The Parents' Review; Child Life.*

Child-Study.

The Journal of the Child-Study Association.

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A Child's Questions.

By William Boyd, M.A., B.Sc., D.Phil.

Though there is general recognition of the large part that questions play in every normal child's conversation, and of their great importance for the development of mind, there is very little exact information available concerning children's questions. The reason is perhaps to be found in the fact that the uncommon speculative questions about the nature and origin of things which do not lend themselves readily to analysis have generally monopolised attention, while the ordinary questions about everyday happenings, which are really more characteristic, have received less than their fair share of attention.

With a view to studying these ordinary questions, I began to make an annual collection of my little girl's questions a few years ago. Beginning in the week before she had completed three and a half years of life, I noted down in shorthand all the questions asked in a variety of circumstances, and went on gathering groups of questions for about a fortnight until I had five hundred in all. I repeated this when she was four and a half and five and a half years old. In addition to these three collections, I have incidentally accumulated questions every year from two to six, in making an annual collection of 1,250 sentences for the study of vocabulary and sentence structure.

Frequency of questions at different ages. Before going on to an analysis of the questions asked at three and a half, four and a half and five and a half, to which I propose to confine myself mainly in the present paper, I give the percentage of the 1,250 sentences which took the form of questions from two to six:

2	3	4	5	6
2	27	31	22	21

These figures show a well marked decline in questioning activity after four, and confirm the general impression that questions were of less frequent occurrence after four or four and a half. As questions have been consistently encouraged by careful answers, the decrease must be attributed to mental growth and not to repression of any kind.

The general character of the questions may be best indicated by giving as examples all the questions asked in the course of a short walk at the age of four and a half: "Will you let me shut in the kitty here again?" "Will you wait till I go upstairs?" "What will I play with when I go home?" "Where is Mr. Reid's?" "What house is that?" "What did you say?" "How would it be very cold after that?" "Is there a field behind that house?" "What is it?" "Why not?" "Is there a river down below there?" "Why not?" "How do the stones get in?" "They would not drink there, would they not?" "How can it come across the road?" "What if I was behind the houses?" "How have the cattle been tramping them?" "Do they not get out?" "Is Jessie out?" "Why did he say, 'There is a little girl coming'?" "Did you hear any meows?" "Is the brown door shut?"

The striking feature of these questions is their particularity. They all refer to actual facts and events with scarcely a suggestion of generality. In this respect they are a representative sample of the questions as a whole. General questions do occur occasionally: for example, "Why have reindeers got horns?" "Do

all bulls toss people?" "How does a hen lay bad eggs?" "What makes rocks?" "Where are all the earthquakes?" But these are quite exceptional: even at five and a half only some three per cent. of the questions were of this type. It is evident from this that the main interest of the questions is in their form rather than in their content.

Classification of the questions according to form shows that they fall into two main groups: A. Those in which the interrogation is indicated by the order of the words and which are capable of being answered by a simple "Yes" or "No." B. Those which are prefaced by a specific interrogative word and require a sentence for their answer (Professor Stern calls this type of question a *Bestimmungsfrage*, a question that determines the nature of the answer). The following table gives the percentage of the questions in these two groups and their sub-divisions in the three successive years.

	3½	4½	5½
A. Requests	11.6	5.2	11.2
Rhetorical questions (Do you know?)	5.6	3.2	3.6
Statements turned into questions ...	—	6.8	3.2
Questions of fact	39.0	34.4	29.4
	56 2	49.6	47.4
B. WHAT?	9.6	11.0	15.4
WHAT (adj.)? ...	1.2	3.0	5.0
WHAT...FOR? ...	1.6	1.8	1.2
WHY?	19.2	15.4	10.8
HOW (=Why)? ...	.8	6.0	3.0
HOW?	2.6	5.2	4.8
HOW MANY (much, long, etc.)? ...	.6	.4	3.8
WHO? WHICH? ...	2.2	1.8	2.0
WHERE?	4.0	4.2	4.8
WHEN?	2.0	1.6	1.8
	43.8	50.4	52.6

QUESTIONS REQUIRING THE ANSWER "YES" OR "NO."

These questions are of two main kinds, which may be designated objective and subjective respectively. The objective, comprising questions of fact and statements turned into questions, have as their primary object the getting of information: the subjective, comprising requests and certain rhetorical questions, have in view some subsequent action affecting the questioner.

Questions of fact, which are much the most numerous of all questions, are asked when the child wishes to be sure that a thing *is* what it is thought to be, or *does* what it is thought to do: *e.g.*, "Is that our train?"; "Did he (Milton) write it when he was blind?" Such questions may be answered either by "Yes" or "No," and are called by Professor Stern "complete disjunctive questions." They are virtually assertions in tentative form, incomplete predications which may assume either an affirmative or negative character according to the response of the person addressed. The categorical implication indeed becomes quite explicit in *Statements turned into questions* (such as, "That is our train, isn't it?"), which it will be noted do not make their appearance till the fifth year, as also in such "expectant" questions as assume the answer (such as, "Isn't she a lovely dolly?") which have been grouped with them. Both in these questions and in questions of fact, there is suggested a connection of facts such as might be embodied in a categorical proposition; but whereas in the one case judgment is held wholly in suspense, in the other there is an actual assertion, followed by a partial retraction.

Requests take two forms. In the first, which is akin to the imperative, the person addressed is asked to do something; in the second the questioner asks permission to do something. The one is generally introduced by "Will you ...?"; the other by "May I ...?" or "Can I ...?" From the table it will be seen that at four and a half there were less than half the requests made in the year before and the year after. What the explanation of this is I do not know, but that it indicates some mental peculiarity and is not a mere statistical accident seems to be indicated

by the fact that, at three and a half and five and a half there were four or five times as many "Will you's?" as "May I's?" while at four and half there were rather more of the latter than of the former.

Rhetorical questions introduced by "Do you know?" (for example, "Do you know what I have done?"; "Do you know what she said?") which are asked for the purpose of introducing some information which the child is eager to give, are probably a personal idiosyncrasy of my little girl. It is one expression of the didactic habit of mind which makes her wish to pass on what she has learned to other people. An interesting variant of the idiom peculiar to the fourth year, and accounting for a quarter of the instances at that age, appears in questions like, "Do you know, we are going to town?" in which the statement to be made is given in the question, and not held up as in the other cases till the desired answer ("No!") has been received.

QUESTIONS PREFACED BY INTERROGATIVE WORDS.

What? Why? How? The figures for questions introduced by these important determining words are decidedly surprising. The use of "What," both in its pronominal and in its adjectival forms, shows a steady and well-marked increase from three and a half to five and a half. "Why" itself shows the contrary tendency with equal definiteness; and even when "How" used in the sense of "Why" is counted in, the fact remains that "Why" and "How" used for "Why" together occur much less frequently at five and a half than in either of the two preceding years. "What...for," which with its implication of purpose is similar in effect to "Why," shows the same tendency. "How," in its proper sense, again, while occurring twice as often at four and a half as at three and a half, is not used quite so much at five and a half as at four and a half. These facts are certainly not in accordance with one's expectations. On logical grounds one would be inclined to accept the account of the development of children's questions given by Professor Sully in his *Studies of Childhood*. "What is this X?" he says, is the simplest form of question (p. 75). Then the question as to the reason and the cause of things, indicated typically by "Why," "develops naturally out of the earlier, for to give the 'What' of a thing, that is its connections, is to give its 'Why,' that is its mode of production, its use and purpose" (p. 77). Still later "a directing of inquiry into the processes of things appears in the fifth and sixth years," when the more modest "How" partly takes the place of "Why" (p. 88). Obviously, if this view of the succession of "What," "Why," and "How" questions is right, the figures which I have given with regard to the questions of my child indicate a certain abnormality of mental development. But while recognising the danger of inferring too much from a single case, I venture to think that the careful analysis of a single case, which there is no reason to consider abnormal, may bring us nearer the truth than a generalisation based on unverifiable impressions and possibly influenced by *a priori* considerations; and I suggest that the true order of development is not, as Professor Sully says, from "What" to "Why" and "How," but from the vagueness of "Why" to the greater precision attained by an increasing concern about the nature and relations of things acquired through the freer use of "What" and (to a much less extent) of "How."

This view is confirmed in some measure by a consideration of the ways in which "What" and "How" were used at the different ages. Professor Sully assumes that the typical form of the "What" question is "What is this X?" leading ultimately to definition. As a matter of fact, "What" was employed at three and a half with almost equal frequency in two different ways, "What is X?" and "What does X do?" an indication, especially in the latter case, not so much of the need for definition as for a knowledge of related facts to give greater precision to the facts

already known. At five and a half, however, about seventy per cent. of the "What" questions took the form "What is X?" showing presumably that with advancing years there was less desire for the more exact specification of things done and greater desire for a general characterisation of the nature of particular things. (In this connection, it is interesting to note that the question, "What is that?" and its equivalent, "What is it?" which Miss Alice Snyder—in the *Pedagogical Seminary,* September, 1914—says is the most primitive form of the "What" question, occurred with greater relative frequency at five and a half than at three and a half.)

The confusion of "How" with "Why," which I have indicated by giving "How" used as "Why" a separate entry on the table of questions, is rather curious and partly bears out what has been said about the vagueness of the "Why" questions. I suspect that it is a corruption of one of my own idioms, "How is it that ...?" and in point of fact one of the child's questions at five and a half took that very form. Generally, however, there is no suggestion of the idea of process in this use of the word. When she asks, for example, "How is the train going slowly?" she really means "Why ...?" The decreased use of "How" in this peculiar sense, which is evident at five and a half, seems to be mainly due to the decline in the "Why" type of question, but there may also be here the beginnings of a better appreciation of the distinction between "Why" and "How."

Only a brief comment is required on the other interrogative words. *How many,* and the other combinations of "How" with quantitive terms, it will be seen, is uncommon before five and a half, and then occurs with considerable frequency. This gives an interesting sidelight on one phase of the general development of accurate thinking, which I have already inferred from the increase in the number of "What" questions at that age. *Who,* as a question word, only accounts for about two per cent. of the questions in all the three years under survey. In view of the fact that there was a very notable increase in the child's interest in persons about the age of five, it is rather surprising that the proportion of "Who" questions remained stationary. The reason is probably that the persons to whom it has reference are individuals, not classes. *Where,* which all observers agree is the most frequent interrogative word at the beginning of the third year, is comparatively rare from three and a half to five and a half. It is, however, used rather more often at five and a half than at three and a half. *When,* on the other hand, which might have been expected to become more common as the child grew older, shows no increase at all. Considering the fact which I have demonstrated elsewhere (*Pedagogical Seminary,* March, 1914, p. 121) that adverbs of place have a progressively smaller, and adverbs of time a progressively larger, part in the child's speech from two to four, it is difficult to account for the percentage figures relating to the interrogatives "Where" and "When." I can suggest no explanation.

The two main groups of questions. Having now considered the several types of questions in some detail, I would call attention in conclusion to the steady decrease in the number of "Yes" or "No" questions (and especially of questions of fact) from three and a half to five and a half, and the consequent increase in the number of questions introduced by interrogative words. The reason seems to lie on the surface. Questions requiring the answer "Yes" or "No" are in many cases expressions of the child's mental helplessness and insufficiency, and they naturally become fewer with the development of self-reliance. Questions with determinate interrogative words, on the other hand, imply that the child already knows with some degree of definiteness what it wants to find out: they involve not merely a desire for the confirmation or negation of tentative judgments but the more difficult quest for new materials of judgment. Hence they tend to become more numerous relatively to the other

group of questions, as the child grows older.

There is one difficulty, however, in the way of this explanation. When the child begins to speak in embryonic sentences about the end of the second or the beginning of the third year, its first questions are almost all questions prefaced by interrogative words. In the collection of my little girl's sentences made from the twenty-first to the twenty-fourth months, there were twenty-five questions. Of these, twenty-one began with interrogative words (Where, eleven; What, nine; Why, one): only four were of the "Yes" or "No" type, and one of them may have been intended for a "Where" question though there was no "Where" in it. (As I have met no record of the "Yes" or "No" question among the first questions of children, it may be of interest to add that all four questions occurred at the beginning of the twenty-first month. That they were genuine questions and not mere echoes is shown by the form of one of them: "You's plate?" meaning, "Is that my plate?") Such facts as these appear to throw doubt on the view that the "Yes" or "No" questions are the more elementary. Yet I am not sure that this is a right conclusion to draw from them. In the first place, it is by no means certain that some of the early sentences of the child, which in the absence of any special intonation one regards as categorical, are not really tentative statements akin to questions. It is often extremely difficult to distinguish between statements and imperatives at this stage. It is conceivable that there may be the same difficulty in distinguishing statements and questions, and that what are taken for statements may, in some cases, be questions obscured by the imperfection of the child's powers of verbal expression. But, in the second place, even if there are no "Yes" or "No" questions other than the few which are marked by the interrogative intonation, it does not follow that this form of question is not the simpler in essence. "Yes" or "No" questions may be absent at the end of the second year, not because they are more complex than questions introduced by "Where" or "What," but because the child's dependence on others for the materials of his thought is still so great that as yet there is little occasion for those hesitating attempts at predication which a year later lead him to ask whether things are or are not what he thinks them to be.

A Mother's First Lessons to Her Child.

By Mrs. Alys Lucas.

The tendency of recent years has certainly been to postpone the age at which a child begins to be taught ordinary school subjects. Probably everyone will agree that this tendency is in the main to the good, and that in the past much irrevocable harm was done to children, both mentally and physically, by too early application to books and study. Montessori and Froebel classes deal with a few of the children too young to start real lessons, but by far the majority receive no deliberate education until they are old enough to begin reading and writing.

Many mothers feel the need at the age, four to five and a half, let us say, of some definite occupation for their children. They feel that the discipline of a fixed task to do at a fixed hour is very desirable, and that some encouragement to exercise concentration of the attention would not be amiss, and they look round for some plan they can work on which does not involve undue expense or study.

I lay no claim for any originality in the scheme I am going to sketch out. I have borrowed ideas from many sources, yet I hope an account of what one mother has found useful and attractive to children may at least suggest to others possible lines on which to work.

Clearly we ought first to make up our minds what we are to aim at in our teaching. But taking for granted for the moment that there are definite desirable "lessons" to teach, let us first turn to the method of teaching them. It is very important to get the child to think of his lessons as a great privilege, and he is

usually quite ready to do so as he feels it belongs to "growing up." A certain time in the morning should be fixed on and kept to with accuracy. In this connection it always seems to me a bad plan for teachers to arrange an hour so that the child has just time to start his own games and then is called to lessons. We grown-ups do not like to be interrupted when we have just begun some task, and I feel we owe the same consideration to our children. Ignoring this little fact may account for a great deal of the prevalent unwillingness to come to lessons.

The best time is directly after breakfast, or after a walk, or whenever it fits in with a child's daily life. Half an hour to forty minutes is quite long enough to begin with. The time should be divided into two halves. If the first half necessitates a child sitting still it is best to make the second a more active lesson, or to let the child have a run round the room in between. If he is fidgety when he ought to be still let him run up and down stairs till he feels better; scolding is no use at all.

With many children great care must be taken not to allow discouragement by letting them make too many failures. Remember that the power to persevere under failure has to develop like every other power. On the other hand every encouragement should be given to enable a child to keep on trying.

Coming to lessons with clean hands, the care of the various apparatus used, and putting things away afterwards are all opportunities for moral training, which a mother will eagerly make use of.

Sense Training. To turn now to the things we wish to teach, we will consider first of all the large subject of sense training; that subject with which all modern psychologists and educationalists are so occupied. It is beyond the scope of this paper to go into the whole psychology of sense perceptions, but it is accepted by all who have studied the development of young children that accurate, numerous sense perceptions lay a large part of the foundations for future intellectual life.

Many people, observing how incessantly the work of sense training is carried on by a young child himself, are inclined to think we can do no good by interfering with him, and that he has the task well in hand himself. Interference will do no good, and no true educator would dream of imposing it, but deliberately providing material for the senses to work on is a very different matter. In primeval days when the savage babies had the sea-shore, the wood, and the hill side as their nursery they were liberally provided with material, and evidence goes to show that they used it well, and that as regards acuteness of the senses they were our superiors. Civilized life, especially among fairly well-to-do people, may be very poor in opportunities for the child to exercise his growing sense perceptions, and our help may be very necessary if he is to enter into his full inheritance.

Of course Dr. Montessori's apparatus was especially designed by this need, and is invaluable. The geometric insets are of special use. For the sake of those who may not be familiar with these let me briefly describe them. They consist of square bits of wood, 5½in. × 5½in., with various geometrical figures cut out of the middle: a circle, ellipse, or triangle, for example. There are also identical circles, triangles, etc., made of wood, which exactly fit into the spaces on the wooden squares.

(a) *Touch.* Small children fit the insets into their appropriate frames by eye, but older children learn to do so by touch only. The child should be carefully shown how to hold the inset by the little knob fixed in the centre of each, and how to run his finger lightly round the edge till he has a clear idea of its form, then he must feel round the edge of the holes in the various frames till his fingers tell him he is tracing the same form. The set comprises a large number of forms, so that the exercises can be graded in difficulty. For example, a square, a triangle, and a circle can be placed before the child; these will not require much skill to differentiate. Or six different triangles or polygons may be

given to him, which often prove too hard for a grown-up to do correctly.

Blindfolding the eyes is the obvious way of getting the child to discriminate by touch alone. A way of avoiding this, for children who object to being blindfolded, is to let a child sit at a table and have the empty frames before him so that he can see them, then to pass the insets to him under the table and let him feel them with both hands, hidden from sight by the table top; if he is in doubt let one hand come up and feel all the frames and then go under again; finally let him point with the empty hand to the frame he means to fit his inset in before he brings it up into view.

(b) *Sight.* Sorting a collection of scraps of material into duplicates is an excellent occupation with the same aim (the development of the tactile sensibility), and the apparatus required for this is within anyone's capacity to provide. Great care should be taken not to give a child a task so hard as to discourage him, and in preparing the materials for this game the grown-ups should feel them themselves with their eyes shut and get some idea of the difficulty of the task they are setting a young child. Another variation is to sort into duplicates, by touch, a collection of small objects such as pearl buttons, linen buttons, dried pears, beans, hooks and eyes, matches, wire, beads, coffee beans, rice, lengths of macaroni, screws, etc. Let the child select two he thinks are similar and then look to see if he is right. The game seems very attractive to children, provided variety is given by changing the materials used.

Colour matching is a very good exercise and one that children seem very fond of. If the colours are made at home great care should be taken to get enough shades of one colour; the Montessori box of colours gives eight shades of eight colours, and that is none too many. If made at home they can be either little oblongs of wood or card, painted or bound with silk or wool. The set should be in duplicate. The exercises that can be carried out with these are so obvious as hardly to need description. At first the colours can be simply paired, and then arranged in order of gradation.

A game I have found to appeal to children is to make a star-shaped figure of the colours all radiating from the centre, each spoke consisting of one colour, and with all the darkest shades at the centre. Again, one set of colours can be placed at one side of the room and another at the other, and the child may be shown one colour and asked to fetch the duplicate. With many children this is more attractive if played as a game, and they are told to go shopping, or to be a messenger or despatch rider. Whether the accessories of this imagination, and perhaps a toy horse to ride on, helps or not depends simply on the child's individuality.

Some children are perfectly content with the exercising of their capacity merely, and will show great earnestness over it, while their more imaginative, versatile brothers would soon be bored if the performance were not turned into a game. These latter are sometimes exactly those who will get most benefit from a careful, thorough sense training. Some of them may belong to the great company of dreamers, and a careful foundation of accurate and ordered sense perceptions may be just what is needed to turn their energies into sound channels.

(c) *Visual Memory.* It is curious to note in ordinary school education how much time is spent on developing verbal memory and how little, if any, is expended on visual memory. Whatever may be the practical use of verbal memory in after years, it is not wise to force its development in early childhood; and yet for how many of us did not our first lesson take the form of some poetry to be memorised?

I say it is not wise to force its development, because children have a natural aptitude for the memory of words and phrases they hear used and do not understand. To encourage this would be to accustom the child to use word symbols for ideas he is not yet familiar with, a habit very much to be deprecated. Much of false reasoning, ambiguity, and super-

ficiality has its beginning simply in this pernicious habit. For years we need to be on our guard with children never to give them the name of a thing before they have a definite association with the subject or idea. In giving children words, phrases or poetry to learn by rote, we should satisfy ourselves that the ideas contained in them have some real meaning to the child's mind. Of course a child will not see all the significance that an adult finds in a given phrase. All that matters is that it should have some real meaning for him and not be an empty phrase that sounds well but has no reality behind it. I think, therefore, it is best to keep away from learning by heart until the child is several years older than those we are considering.

Visual memory, on the other hand, has none of the grave disadvantages of verbal memory, and its development is of the uttermost importance in our intellectual life. Nearly all original constructive work in the adult comes from the power of thinking in images. The calling up into the mind of clear mental images is essential to real thought. The refusal of the mind to recall a verbal impression, a name, a formula, or a date is at the worst a temporary hindrance, necessitating the use of a text-book or dictionary; the failure of the mind, however, to call up a clear mental picture of the subject of thought gives rise to numberless confusions, ambiguities and false reasonings.

Let anyone who doubts the importance of visualising take some familiar example of constructive thought and work out the mind processes involved. Take, for example, planning the garden for next season, or making a dress. Does not the success of both of these homely tasks depend on our having clear and accurate images in our mind of what we propose to do and how it will look when it is done? The means by which we can train this power in childhood are numerous. Let us begin first with the well-known and classic game of arranging a collection of miscellaneous articles on a tray, looking at them for a short while, turning away and naming all the articles that can be remembered.

With young children a slight modification makes the game easier owing to their possible difficulty in correctly naming some objects. Collect about twelve things, such as a pen-knife, a penny, a flower, etc., and out of these twelve take four or five and arrange them apart. Let the child look at them for three or four seconds, then turn his back; now put the objects back among the others and let the child pick the same out again and arrange them as they were before. The first time or two at each lesson, of course, is easy, as the child recognises those he has already seen, but when he has been through them all once this difference disappears. With this form of the game there is the additional exercise in arranging the objects in the same order as before.

The Montessori insets can very well be used in this connection, by putting some dozen on the table, then making a pattern with the required number and getting the child to repeat it in the way described above. Beginning with a child of four, three or four separate articles are enough, but with wonderful rapidity the child will be able to deal with eight or nine. The colour blocks here will come into use again. Get the child to lay four or five colours out before himself, cover them and say in what order the colours were. This exercise, of course, may become merely verbal memory; he may say the names of the colours to himself when he is looking at them and then repeat the names.

I have known a child say to himself the colour names in sequence from top to bottom of a column of colour blocks, but when he was to repeat them after the colours were covered he began at the opposite end of the column and said them backwards. Clearly he was relying on the image of the colours in his mind and not on the sequence of sounds. That by far the greatest number of adults will do it by memory of sound is an indication how one-sided is our education.

I must digress here to describe a set of wooden bricks, which are very useful in

this connection of teaching visualisation, and also for other lessons which will be described later. They consist of a hundred or more wooden cubes, 1in. × 1in., American white wood being the best material; also lengths of wood, 1in. × 2in., 1in. × 4in., 1in. × 8in., etc.; several large cubes, squares, and oblongs, in multiples of 1in. cube, like 4in. × 2in., 6in. × 2in., 4in. × 4in., etc.

To use these for the purposes we are discussing give the child a number of the small cubes, then show him a brick 4in. × 1in. and ask him to put enough of his together to make one as long; then he can measure his result by the undivided length and see if he was right. It will be best for some while to let the child build up the sizes you want by keeping the copy before him and referring again and again to it; but this is in itself not an exercise to be despised, as the child has to use considerable judgment and neatness of construction. When he is familiar with the game try letting him see the undivided whole only for a moment, and thus compose his own by referring to the mental picture he formed when looking at it.

If the child has any power of drawing, it can well be turned into exercise for visualising. The old-fashioned way of getting children to copy other people's drawings did all it could to kill this valuable faculty. Ask the child what he would like to draw. He will probably choose something he has recently seen or heard about. If it is too elaborate try and get him to consent to some part being left out, but never make him change his choice for your preference. Supposing he wants to draw an Eskimo killing a seal, say to him, "Now sit quite still and shut your eyes, and tell me all you can see about the Eskimo." Very little practice will get a child to understand making these mental pictures, and he will say something like this: "I see him in his fur clothes and a spear in his hand just going to hit poor Mr. Seal." Then get him to draw what he can unaided. When it is finished look at it with him, and try and make him see his own omissions: "How is the seal going to swim?" "Oh, I've forgotten his flappers," and so on. Let him then recall the scene once more and re-draw the picture. It is quite amazing often what improvement the second picture shows. If you want to illustrate any point for him draw it yourself and let the child see it for a minute, then take it away; never let him copy it.

As the months go past with a child trained something in this fashion it is wise to consider definite preparation for the tasks ahead like reading, writing and arithmetic. There is a great difference between preparing for a study and actually beginning to work at it, and a judicial preparation for school work may considerably lessen the strain of such work when it begins, and also lay sounder foundations for its development. In a following article I shall try to indicate how this may be done, as well as to point out further most valuable lessons of the non-academic description.

A Montessori Experiment.

By C. W. Kimmins, M.A., D.Sc.

In the Church of England school at Sway, in Hampshire, the conditions are very favourable for comparing the value of teaching on the Montessori system with that of the ordinary instruction in an infants' school. The Montessori method, with full equipment of apparatus, was introduced into the schools in May, 1913, by a teacher who had been head mistress of the infants' department since June, 1909, and who, up to May, 1913, had conducted the school on fairly modern lines. The value of the experiment is enormously increased by the fact that the teacher in charge has been the same throughout, the only change being an alteration in the methods of instruction.

At Easter, 1914, *i.e.*, after ten months' teaching on the Montessori method, fourteen children were promoted to the upper (mixed) school in the same building, and their education was continued on the ordinary method adopted in this school for many years.

In January, 1915, I visited Sway and examined the children in Standards I. and II. of the upper school; the children in Standard I. being the only pupils who had come under the Montessori influence. The weather was particularly bad on the occasion of my visit, and consequently there was a very poor attendance in all the standards. I tested the children in reading, composition and dictation, and from the results obtained and from my observations of the alertness and general intelligence of the children, I came to the conclusion that those who had come under the Montessori system were about one year ahead of the others. In other words, there appeared to be very little difference between the attainments of the children in Standards I. and II. The striking points of difference were, that the children in Standard I. were more resourceful, and that in unseen work they overcame difficulties more readily than the others.

I was so much impressed by the result of my visit that, with the kind co-operation and assistance of the managers and head teachers of the school, I arranged for the children to be tested individually, under proper safeguards, with a series of tests in reading and arithmetic which had been given to a large number of London school children (in the case of reading to about twenty thousand) and upon which norms for the attainments of children of different ages in these subjects have been based. Care was taken in carrying out these tests to apply them to all the children, so that no error, due to selection, might vitiate the results. There were fourteen children in Standard I., their ages being as follows :—

Three 7½ to 8 years;
Six 8 to 8½ years;
Four 8½ to 9 years;
One 9 to 9½ years.

In Standard II. there were ten children, seven of whom were between 9 and 10, one 8, and two 10 years of age. The children of Standard II. were thus practically a year older than those of Standard I. The results of the individual tests were as follows :—

	Reading.	Addition.	Subtraction.
Standard I. (av'ge)	84	19	14
,, II. (,,)	89	20	14

The detailed examination, therefore, fully confirmed the impression made at the inspection that the children, so far as the ordinary subjects of instruction are concerned, have derived enormous benefit from the change of method adopted in the infants' school.

The results are still more striking when compared with the norms for children of the same age. These are shown in the following table :—

	Reading.	Addition.	Subtraction.
Average performances of Standard I. children	84	19	14
Norms for the ages of the children examined	63	17	12

The normal achievements of children from 9 to 9½ in reading are 76 for boys and 79 for girls, whereas from 9½ to 10 they are 81 and 86 respectively.

Thus it will be seen that whereas in addition and subtraction the results are slightly better than normal, the reading results are rather more than a year beyond the normal.

The results of the examination of Standards II. and III. were interesting as indirectly confirming the accuracy of the above results, as by comparing the performances of the children age for age in these standards with the norms in reading and arithmetic, the results agreed very well indeed.

The Sway School (Headmaster Mr. Quinn) is a good, small, country school, and reading is its strong point. In this subject it is slightly beyond normal in both of these standards, but falls slightly below the normal in arithmetic. This is just what would have been expected.

In writing short essays in a fixed time, the greater practice in writing of Standard II. gave these children an advantage in speed; the younger children concentrated more on careful handwriting. Apart, however, from the actual handwriting, which for children of this age is somewhat above the normal standard, the reading

of those who have been influenced by a relatively short course of Montessori practice is far beyond the written work. In the children, however, who have had practically the whole of their infant school training under this method and who, therefore, went through the preparatory course of muscular and sensory practice leading up to the act of writing, the balance is properly maintained. This is one of the most interesting results of this enquiry.

The second part of the investigation consisted in the examination of the children to be promoted to the upper school at Easter, 1915, and who have, therefore, had two years' practice in Montessori methods. The object of the enquiry was to see how these compared with normal children. Of the ten boys and girls who will be promoted, two were 6½ to 7, five 7 to 7½, and three 7½ to 8 years of age. The comparison is as follows :—

	Reading.	Addition.	Subtraction.
Average results obtained in examination	70	14	9
Norms for the ages of the children examined	42	11	10

The arithmetic results are thus about normal, but the reading results are those generally obtained for children of 8½ to 9 years of age. In other words, these children are in this subject about 1½ years ahead of normal children.

A short essay, for which a limit of time (fifteen minutes) was given, produced some interesting results. The amount written for such young children was remarkable : they actually wrote more than children in the Standard I. of the upper school. The explanation apparently is, that children who have suitable preparatory exercises before the act of writing is attempted have far less difficulty in manipulating the writing instruments. Writing in this case becomes a far easier operation than if adequate preparation is omitted. The firmness of the writing and the equal facility in writing in chalk and pencil are very marked. Writing is, in fact, in this case a natural product in a rational system of muscular movements and sense training, and the child having already acquired by tactual experience the necessary knowledge of the forms of letters to be made, the act of writing loses its irksomeness and the child delights in writing as much as in reading, without going through a long period of tiresome writing drill. This saving of time and the increased interest on the part of the child probably account for much of the progress made.

The small batch of children now going into the upper school at Sway is one of the first detachments of fully trained Montessori pupils in an English elementary school, and their future development will be watched with much interest.

I have to express my great indebtedness to Miss Belle Rennie, one of the managers of the Sway School, who has been of the greatest possible assistance in this investigation. I am also indebted to Sir Andrew Fraser, K.C.S.I., who very kindly acted as time-keeper during the tests.

The value of the above results, as demonstrating the great value of the Montessori method of teaching, is obviously open to criticism as being based on experiments on small numbers of children. It should be stated, however, in this connection, that the results were not in any way affected by the presence of particularly clever children in one group or very backward children in another. The numbers obtained for the children in the different groups were fairly close together, and the majority of the Montessori children were better than the majority of the others, the average result, in fact, approximating to the median in each case. It should also be pointed out that the obvious disadvantage of small numbers in this case is counter-balanced by the fact that more than one comparison is made, and that the tendency is all in the same direction.

It must be admitted that in weighing up a case of this kind many factors have to be taken into consideration which are difficult to evaluate. It is, for instance, very probable that in taking up a new

method of teaching, especially if it is adopted with a strong belief in its efficacy, the enthusiasm and energy of the teachers will, directly or indirectly, make itself felt and will do much, independently of the method, to ensure success. But in spite of this, and of the somewhat slender data upon which the conclusions are based, I contend that we have here evidence, not indeed sufficient to prove conclusive, but sufficient to afford a strong presumption in favour of the Montessori method, and to encourage others to experiment further in the same direction.

Parent Educators.

By Professor Bidart.

Translated by Miss M. S. Ryan, b.a.

2. *How Duty is to be explained by the idea of Justice.* Duty is binding on us all throughout our lives. The child must obey his parents; the apprentice, his foreman; the servant, his master; the soldier, his military discipline. The citizen owes his life and his property to his country. The husband owes protection to his wife; the wife owes fidelity to her husband. Everyone, in whatever position he may be, is, at every moment of his life, bound by the invariable law of duty. Let us teach our children to be submissive to rule; we can render them no greater service. Since duty is, as it were, the very framework of life, he who learns his duty learns how to live. If we neglect to teach the child his duty, we fail him in exactly the same way as if we neglected to teach him to walk.

Certain educationists, out of respect for the liberty of the individual, wish the child to be left entirely free. But a child thus brought up would run the risk of becoming the slave of idleness, intemperance or immorality. Such a state of licence would be a most fatal gift; the child would become an evil doer and thus unhappy. True liberty consists in being master of one's passions.

What is the best way of making the child understand and realise the law of duty? Some say religion offers the best explanation. But many people lose their religion, and so may lose their recognition of duty with it. Others suggest honour. The sentiment of honour may be instilled, but too often the fruits of the sentiment are pride and vanity, and thus this teaching may lead to harm. Others again suggest filial love. But that assumes that the child needs no guidance from within when beyond the stage of parental control.

Others suggest self-interest. Yes, it is true that our interest, rightly understood, does often coincide with our duty. But if we offer to the child, as a rule of conduct, the maxim, "Seek your own interest," we shall drive him to commit any bad action which he judges useful and likely to be unpunished. Lastly, some suggest habit. Habits may change under the influence of ridicule, for instance. Reason remains constant. If we do not accept religion as the basis of duty, let us give the child some principles, some ideas, for his guidance.

What is there to give? There is one moral principle which a child loves above all others, and that is, the principle of *justice*. The idea of justice must serve as the foundation for all our moral teaching. We shall reason thus: "It is not just to make anyone suffer through our own fault. When you suffer, what do you think of the person who has made you suffer? Reflect carefully; everyone must suffer, let no one have to suffer through you."

Every act of duty can be justified by this argument. What is filial devotion? It is justice; it is just that we should do something for those who have done so much for us. Why is a lie so odious? Because it is an act of treachery; that is, it is an injustice. What are theft, slander, calumny? They are so many crimes. Whence comes the moral obligation to work? Every one of us has, so to speak, a debt to those who have enabled us to live. Why is pride so wrong? Because it is unjust; it makes us esteem ourselves of greater worth than we really are.

Why ought each one to uphold the honour of the family? Because a man owes it to his family. All our duties are

debts. Note the force of the term; the man who does not pay his debts is a shirker. To the man who has reason to say to me, "You have done me a wrong; I have suffered through you," I can find nothing to urge in reply. I can make no defence, and am filled with shame. I have not honoured my debt; I have been unjust. It is I who merit the first stone to be cast at me. Such are the lofty sentiments by which the child's young intelligence must be nourished.

Some educationists would substitute for the negative "Do not do wrong" the positive "Do good." Rousseau makes this admirable retort: "Is there anyone who does not do good? Everyone does some good, the sinner as well as the saint. He makes one person happy at the expense of a hundred who are miserable, and that is how all our miseries arise. The highest virtues are negative; they are also the most difficult because they make no display, and do not even bring that satisfaction which is so dear to the heart of man, namely, of sending away someone pleased with us. How much good there is in a deed which is compulsorily done towards a fellow-man and by which no harm is done towards anyone!

"As a matter of fact, the world is full of people who are good-natured towards those to whom they are not bound, at the expense of those who have claims upon them." How many a man makes himself popular in society and is a tyrant to his wife? How many a woman is charming to her friends and bad-tempered to her own family? How many a boy of twenty is most polite towards everyone but his own parents? How many a worthy tradesman is kindly disposed towards some people and a cheat to others? All the sufferings which men cause one another come from the fact that they try to be good, kind, amiable, anything you like; but they do not try to be just. It is for this reason that even goodness is hateful if it is not animated by justice.

On the other hand, goodness comprises justice, for it faces things as they really are. Now what follows *is* one of the realities of life. Every man owes an immense debt to humanity. All my life I have enjoyed, and I shall enjoy, numbers of things, *e.g.*, means of labour, communication, food, clothing, works of art, etc., which I have done nothing to create. If I am unfortunate enough to fall ill and become unable to support myself, I rely on my fellow-men to feed, nurse, and support me in my sufferings. I cannot pay my debts to mankind as a whole, hence I must pay them to those with whom I come in contact, or who may have need of my help. I am, so to speak, a member of a society of mutual support; I must pay my share to those among whom fate has placed me, and in order to pay my debt, let me at least do a little good to those who are about me. Let *me* not be a selfish and useless drone in the hive.

It may be objected that this would be altogether admirable if we lived in an ideal world, where everyone acted rightly. Morality based on justice does not sacrifice a man to his neighbour. It is not prudent to say to a man: "You must be like the faithful dog, sacrifice yourself to others." The truly generous character does begin by sacrificing itself, filled with visionary ideas. Gradually disillusionment comes, sacrifices are not rewarded, and the man becomes selfish and embittered. This will never happen to the man who cultivates justice. He is forewarned and forearmed. He says to himself: "I will not be unjust myself, and I will not assume that anyone can, or will, be unjust to me. If I allow my rights to be violated, I shall be doing almost as much wrong as if I were to violate the rights of others."

The man brought up on this doctrine may have to suffer from the injustice of others because they may be stronger than he is; but he will not experience the disillusionment of those who expect to find mankind perfect. Instead of giving way to hatred, he will only cling the more firmly to the idea of justice. "If I suffer," he will say, "it is because mankind does not yet know how to be just." In other words, we find in the world the men who destroy and those who are destroyed. One

system of morality teaches that you must be the destroyer and, hence, the stronger and cleverer. The opposite system upholds the doctrine of suffering in silence, for this life is only transitory.

A better system, that of justice, says: "You need be neither the destroyer nor destroyed, neither survivor nor victim. Be strong and clever; but be so in order to live without needing to do harm to anyone, and in order to hinder anyone from doing harm to you or yours." You must know how to reconcile justice towards others with prudence towards yourself. Thus the principle of justice explains both our duties towards others and towards ourselves. The parent will not need to give a separate explanation of each duty the child is called on to perform; there will be one explanation, and everything will be brought into harmony with it. Unity is an imperative mental necessity; we shall have given the stamp of unity to our moral teaching and to our training, and thereby life itself will be far from a burden to our children. For the possession of a clear and strong principle of action makes it tolerable in illumining for us the journey and the goal.

3. *How to make the right known: the cultivation of the moral sense.* The arguments which have been set forth above as to the importance of basing our moral teaching on the idea of justice cannot all be laid before the child at one and the same time; on the other hand, we cannot postpone having recourse to them until the child is old enough to understand them. It is only after many repeated instances that the teaching will at length penetrate his intelligence. The child learns to talk by talking. In the same way, he must acquire the power to distinguish between right and wrong, that is, the moral sense, *by performing moral acts.*

It is unnecessary to prove that the human being at birth is not endowed with a moral sense; neither has he knowledge. "A child will pick a grape from the vine, will take a piece of sugar out of a bag, just as readily as the adult will take water from the spring or will pluck a flower from the wayside." This is due to his ignorance: he does not know that sugar is not everyone's property, that the grape belongs to someone; he does not realise the relations of things.

But just as he learns to talk as he grows older, and as his intelligence forms, so he becomes capable of understanding that such and such a thing is right and another wrong; you have only to direct his attention to it. The proof is that he looks up to us for approval, he looks to us to know what he is to think. He feels a kind of need of our affection; he is uncomfortable when he sees we are displeased with him, he is happy when we are pleased. In a word, he has self-esteem and he is capable of sympathy; herein is the germ of the moral sense.

How are these qualities to be evoked? Everything is subject to law, is not this the case with the development of the moral sense? If I say to a little child of six, "You must not steal," he will repeat my words but he will not understand them. But suppose I point out to him a poor woman crying, and talk to him as follows: "Why is she crying? She had a purse and now she hasn't got it. What has she done with it? Someone has taken it from her without letting her know. She doesn't know who has it; that is why she is crying." The child will first of all simply think about what I have said.

Afterwards I shall find an opportunity to tell him that to steal is to take what is not one's own, that the thief makes people suffer: then I shall ask him if he thinks it a nice thing to steal, so gradually he will not only understand me but he will get so far as to realise how hateful theft is. Thus he will receive an ineffaceable impression. It is like applying a match to a light. The germ of the moral sense was, as it were, dormant within him; now it is awakened, and he will act upon it whenever there is an incentive to right action. So the great precept is: *give your explanation after the deed.*

Now for the application. The child has just committed some fault. I say to him: "You must do so and so. What you have

done is wrong, and for the following reason." This will not be made as a reproach, for the child did not know, since I had not yet forbidden him this thing, but it is said in order to enlighten him and to make him think it over and remember for another time. When he is older I shall even put him some questions, such as the following, always to instruct and not to punish: "You have acted in such and such a way: is it just? Would you like anyone to do that to you?" Often, under my guidance, the child will find out for himself how he has sinned against justice. Such a discovery is worth far more than anything I can ever say to him; what we find out for ourselves we hold and believe far more firmly than anything we have ever been forced to accept.

If the child should attempt to justify certain blameworthy actions he has committed, we must be careful to distinguish between the case of ignorance (when he must be gently enlightened without any sign of displeasure) and that of calculation or a desire to avoid a merited punishment (when he must be so spoken to as to have no wish to begin again).

By this method, the child will form the habit of self-examination. He will not be like the straw blowing the way of the wind; he will become by degrees a reasoning being, realising his actions and knowing too that he must act in this way and not in that. Before doing anything, he will ask himself, "Is it just?" and then, "Is it wise?" He will become his own judge at every instant of his life and he will thus acquire the most helpful habit of all.

So much for correction of faults. The same rule must be applied to the acquisition of qualities: *the idea before the word.* We shall not attempt to preach nobility of soul to a child of eight. As he learns by experience how much a wrong deed makes us suffer and how much self-control I need to forgive it, then only will he understand the beauty of forgiveness. Let us set the child in contact with realities, and then talking about them can come in the second place.

So far we have only instructed the child as to his own conduct; he must also be enlightened with regard to the conduct of others. He is only too ready to judge and even blame the conduct of others. You will hear him say in speaking of his brother or a playfellow: "Paul isn't good"; "Julia hasn't been obedient." We must discourage this tendency, which may degenerate into a spirit of tale-telling, but we must at the same time utilise it to lead the child to judge himself in comparison with others.

The child does not see himself, he sees others; he is like us who see the straw... We must see that the others become a kind of mirror for him wherein he may behold and examine himself. Each time that he blames anyone we must say, if he deserves such a reproof, "Well, have you never done anything like that?" and if he does not deserve a reproof, we simply say, "Yes, it is wrong, you must not do it." When, on the other hand, he notices that someone deserves praise for what he has done we say, "Yes, it is very good of him, you try to copy him."

If he makes a mistake and praises what ought to be blamed, or blames what ought to be praised, it is for us to enlighten him and show him which is right and which is wrong. With how many opportunities of exercising the moral sense does life present us! Whether it be on a visit, during a walk, or a game, let us encourage our children to observe (they have a natural bent towards observation), and let them tell us the right and wrong actions they have noticed, not, we repeat, to give them the pleasure of telling tales, but to give them an opportunity of using their moral judgment.

This disposes of the question of examples. You read in books on education: "Shelter your child from bad examples." Certainly from bad examples on the part of the parents. But can they avoid seeing the bad examples of others? Are we going to shut them up in a padded room and leave them in ignorance of evil? Even were this possible, is it desirable? Can they go through life in this ignorance?

If they are to play their parts worthily in life, let them do so after our guidance and instruction, themselves innocent, but recognising evil when they see it.

Suggestions for Study and Practice.

A National Educational Research Bureau. "It is evident that a national scheme, financed by the State, is the only way...The lines on which this might work are...A Central Bureau for Educational Research, with its headquarters in London, but with branches throughout the country, should be established. It should have a well qualified and well paid staff of experienced experts, and should be in touch with the educational departments of every country, and a special band of experts should continually visit other countries and report on their observation. It should also be in close touch with the Board of Education, the Universities, the training colleges, and the principal schools.

"The work of this body should be: (1) To investigate the educational systems in vogue throughout the world; (2) to suggest problems for educational research; (3) to publish the results of such research; (4) to supervise and assist such research; (5) to administer the funds received from Government for educational research purposes.

"The staff of the Bureau should be made up of specialists in psychology, physiology, medicine, and statistics, who would suggest and supervise the research and attend to the various technicalities involved, and of educational experts; these would consist of teachers of tried experience who had also received at least two years' special training in the science of education, which would embrace a working knowledge of the sciences mentioned."—*M. Jane Reaney, B.Sc.,* on "Research Work in Education," *The Journal of Education,* April, 1915.

Self-Government in Schools. "This account is furnished by a schoolboy [in a New York, U.S.A., Elementary School] who believes in self-government:—Each classroom elects two officers to represent it on the Self-Government Committee. These officers report offenders at the meetings held each week, the offender being summoned to the meeting by the reporting officer. If he fails to appear, it is put down against him or her as a second offence. For the first offence the offender is merely warned. For the second he is referred to the enrolling-room teacher, who deals with him as he or she deems necessary. For the third offence he is reported to the principal and his name is put down on the black-list. After that he is publicly disgraced before the school at the assembly period."—*The American Teacher,* March, 1915.

Ways of Seeing Nature. "The practical mood sees the usefulness of things and appeals to the so-called 'practical man,' whose trend is towards doing and not knowing. Practical needs must have been the sole outlook of primitive man... To be wholly practical is to grub in the earth for roots, and see no flowers above and no stars overhead. Secondly, there is the emotional or artistic mood, which is well expressed in the lines, 'O wondrous beautiful is God's earth, and good it is to be a man upon it.' We experience that mood in the contemplation of the glory of the sunset and the exquisite beauty of flowers...

"Thirdly, there is the scientific mood, the attitude of the scientific worker who sought to explain Nature rather than exploit her. Such a worker would seek to describe the sequences of Nature in the simplest possible formulæ, and would thus attempt a working thought model of the known world. In order to accomplish that end, a certain logical process is followed and a certain order of inference carried out, and this is known as the scientific method. That is, the scientific worker collects as large a number of facts as he can get, he systematises these facts or data and his inferences from them, and sums up in a generalisation or formula."—*Professor W. B. Bottomley,* "The Scientific Method in Nature Study," *School Nature Study,* April, 1915.

A Case of Collective Suggestion. "An Italian newspaper relates an exceedingly rare case of collective suggestion which happened in a village near Ravenna, where there is a school of forty children of both sexes, conducted by an excellent sexagenarian mistress. During the play-time a child, playing at hide-and-seek, had hidden itself on the landing of the staircase close to the schoolroom door, which was locked, when it heard the sound of a blow inside. Moved by curiosity, seeing that there ought to be no one inside, it looked through the keyhole, and quickly drew back horrified, running to announce that the seat of the mistress was occupied by a skeleton dressed in a black gown, making signs to the child to come nearer. It was mocked by its companions, and many of them ran to peep in their turn through the keyhole, but repeated in terror that they had seen the same vision. The mistress endeavoured to calm them, opened the door of the class-room and entered—there was nothing.

"As, in spite of all, the children remained terrified, she begged the parish priest to undeceive them by the voice of authority. He came, endeavoured to persuade them that the whole matter was an illusion, took them into the class-room to prove to them that no person or thing was inside beyond the ordinary, and then said, 'Now go outside, look through the keyhole, and you will see that there is nothing.' The little ones went out; one of them looked...and fell back, shrieking that the skeleton was in the same place as before. Other children took its place with the same result, and the strange thing is that, questioned separately, they all gave exactly the same details with respect to the vision, of which neither the priest nor the mistress could see anything. A member of the Board of Health stated that this case of collective suggestion was especially interesting because of the fact that suggestion is difficult amongst children.

"The priest of Villa San Marco, near Ravenna, published an account of this case of collective suggestion. On the day following the supposed appearance of the skeleton clothed in black, when the lessons were over he went with others to visit the school. 'When we agreed,' he writes, 'that it was necessary to exclude all idea of trickery, I made the same girl as the day before look through the keyhole. The little one told me then that the skeleton covered with a black gown was seated in the chair of the mistress with its gaze fixed on a book placed on the table. While the girl was on the landing, I, with eight or ten others, was at the foot of the staircase; when I went up the stairway to draw nearer to the child the mysterious being disappeared, according to her account.

"'Supposing that the child had received a suggestion, I told her to demand from the supposed skeleton a proof of its existence by scratching the door of the schoolroom. The girl made this request, and a few minutes after we all heard distinctly a scraping on the door. One of those present suspected that the child had done this. I therefore told her to repeat the request, making her hold her hands behind her back. We heard very clearly for the second time the scraping on the door. Then came a young man who desired that the request to scratch the door should be repeated; and for the third time the phenomenon occurred. I can asseverate that the skeleton has also been seen by four or five men.' In spite of the appearances of the supernatural in this phenomenon, its explanation offers no difficulties to those versed in disturbances of the nervous system."—Translated by *Prof. C. R. Chapple, M.A.*, from *El Monitor de la Educación Común* (Buenos Aires), July, 1914.

Discrimination between Bright and Dull Pupils. "The mental differences between bright and dull pupils can be ascertained by means of simple group tests. The completion, word-building, logical memory and controlled association tests are most valuable for this purpose. Some pupils that seem to be dull are not dull, but are the victims of circumstances. And sometimes the apparently bright pupil is only mediocre, but has succeeded because of unusually favourable opportu-

nities. Sometimes the differences between pupils is only one of laziness. Different habits of study may at other times be the cause. In all cases careful mental tests will give valuable additional information. In teaching children and advancing them through the grades of the public school, all information about them that can be secured should be utilised."—*W. H. Pyle,* "A Psychological Study of Bright and Dull Pupils," *The Journal of Educational Psychology,* March, 1915.

A Hint to Head Teachers, on the advantages of finding virtues rather than faults in their staffs. "The faculty for discerning quickly and surely excellencies and virtues in persons, peoples, nature, and art, is an immeasurably more valuable and useful faculty than the faculty for seeing weaknesses and sins. It ought to be carefully and incessantly cultivated by school, college, and the experience of life, for it is capable of contributing greatly to happiness as well as to material success. The faculty of discerning and using conspicuous merit in other people distinguishes the most successful administrators, rulers, and men of business."—A quotation from President Eliot in *Calvin N. Kendall's* article on "The Training of Teachers in Service," *School and Society* (U.S.A.), April 10th, 1915.

Pupil Self-Government. "Let me conclude on this whole matter of pupil self-government by referring back once more to the main idea that the co-operation of the pupils is essential to all true discipline. So long as the teacher has the discipline entirely in his own hands, the idea of *order* is accepted as a synonym for repression instead of as a synonym for freedom. It stands in no inward relation to the joy which the pupils have in personal initiative, in being a cause. Moreover, the system of self-government has this essential recommendation, that it tends to isolate the offender, whilst on the autocratic system the class shows its *esprit-de-corps* by sticking to the culprits. And this is logical enough, for if the teacher is the only representative of *order*, the pupils cannot be expected to stand up for it or show themselves solicitous for its maintenance. Thus the great importance of self-government in the school-system consists in this, that thereby the powerful force of public opinion becomes as it were civilised and enters as an integral factor into the development of education."—J. Gibson, M.D., "Education and Responsibility," *The Parents' Review*, March, 1915.

The Importance of a Child's Vocabulary. "Words have very different concepts behind them according to one's experience. A child who gets his language mainly from conversation with his elders, from playing with toys or looking at books and listening to stories, has a less vivid foundation for his words than the child who lives with realities, with animals, plants, or other children, and has an opportunity to do things for himself. In order to judge a child's vocabulary one should know the child's environment. How much reality there is in it, how much chance for the child to learn through experience? How much actual contact is there with other children and with nature? What is there in the way of cultural stimulus?..."

[In reference to the vocabulary of a little American girl from the age of eighteen months to four years :—] Her "English is far from being established. She is just mastering her pronunciation, she makes mistakes in grammar, she lacks many essential words which she will have to learn later. The natural inference from this would be that language training is all important for her—she should learn to speak first and foremost. Spoken English is the foundation and should be well established before written or printed English is begun. Again it seems reasonable that she should master her mother-tongue before learning a foreign language.

"The other fact that is made evident by this study is the immaturity of this four-year-old child. Consider the few words [25] for time, the inadequate conception of space, and the remarkably small, although fast increasing number of abstract words. She knows the world

about her well in a way; in fact, she knows more animals and flowers than many adults. But a child with only thirty-eight abstract words in her vocabulary is not ready, it seems to me, to understand much reasoning or religion. One gets into trouble in trying to super-impose too elaborate abstract ideas on a limited foundation."—*Margaret Morse Nice,* "The Development of a Child's Vocabulary in Relation to Environment," *The Pedagogical Seminary,* March, 1915.

Correspondence.

AN AMERICAN'S FRANK CRITICISM OF "CHILD-STUDY."

959, Waverley Street,
Pala Alto, California.
March 25th, 1915.

Dear Sir,—I may be an unique exception, but I am constantly irritated by articles in your magazine that get nowhere, and an admirable example is the article of...If he has any ideas on education why does not he give some concrete illustrations instead of generalities that are of no practical use? If he had indicated what he means by the last sentence of his communication, and had given some illustrations of the practical application of his theories, his article would have left a much better impression on my mind. As it is now, I feel that there is a man who very likely has some good ideas and who has taken the greatest pains to conceal them in a flood of words.

A worse impression was made by another article on...that you published some years ago. It seems to me that in your position as Editor you can induce some of your contributors to give us more concrete instances and less abstract theory. You may have a different view of the matter, but as a reader of a multiplicity of volumes on education I tell you that I always rejoice when a writer tells me something, but I am sick at heart when I read pages of learned theories that arrive nowhere. As our slang expression has it: "Get down to cases."—Yours respectfully, W. H. SHOCKLEY.

[We are obliged to Mr. Shockley for his frank criticism, and quite understand and sympathise with his views, as one who is "a reader of a multiplicity of volumes on education." To do this with profit needs a high degree of competency both in knowledge of the science and art of education, and skill in the selection and assimilation of new material, even though this be presented in the most complete and convenient form. But there are others: the beginners and average learners. For them the best, at times, is that which creates in them curiosity, an attitude of mind, and a desire to test and try before they believe and apply. To them it is most helpful sometimes to say, "Get your own cases." In other words it is better to make them investigators rather than mechanical imitators, and to do this a suggestion is far better than a conclusion. We endeavour to provide for both these classes of readers.—ED., *C.-S.*]

Notices and News.

A Summer School for Teachers of Young Children will be held by the Froebel Society from July 31st to August 21st, 1915, at Westfield College, Hampstead, London, N.W. Courses of lectures on: a philosophy of education; modern methods as applied to reading, language training, writing, and geography; music class teaching or school gardening; handwork, or educative needlecraft, or brushwork; will be given. Full particulars are to be had from The Secretary, Frœbel Society, 4, Bloomsbury Square, London, W.C.

Teaching by Cinemas.—"The University of Wisconsin is making a vigorous effort to develop education through the eye. It has now ready for distribution through the State fifteen thousand slides and two hundred and twenty films. Among the moving pictures circulated is one called 'A Lesson in Etiquette,' made at the University of Minnesota. In this a group of eight students at one table is observing the rules of etiquette, while at another eight students are breaking every rule of refinement."—*The Journal of Education,* April, 1915.

An Educational Essay Prize.—The National Education Association, U.S.A., is giving a prize of one thousand dollars for the best essay on "The Essential Place of Religion in Education, with An Outline of a Plan for Introducing Religious Teaching into Public Schools." Religion is to be defined in a way not to run counter to the creeds of Protestant, Roman Catholic or Jew. Notice of intention to compete had to be given to the Secretary of the Association by April 1st, 1915; and the essays, to be limited to ten thousand words, have to be in his possession by June 1st, 1915.

Lectures on Infant Care.—An important course of lectures and demonstrations on Infant Care, by highly competent lecturers, is to be given at the Medical School of the Charing Cross Hospital, Chandos Street, Strand, W.C., on Thursdays from 6 to 7 p.m., from May 13th, to July 15th, 1915. Teachers will be admitted free of charge, on receipt of a registration fee of one shilling for the whole course. Full particulars can be had from Miss Halford, 4, Tavistock Square, W.C.

Reviews.

School and Society. Edited by J. MCKEEN CATTELL. Pp. 36. Published weekly by The Science Press, New York City: Sub-station 84, U.S.A. Price 10 cents a copy; 3 dollars a year.

Professor Cattell, who is professor of psychology in Columbia University and The Teachers' College, and also editor of *Science, The Popular Science Monthly,* and *The American Naturalist,* has added

to his already numerous and highly valuable activities—a monograph, by some of his students, on his studies on reaction time, reading and perception, psycho-physics, etc., has just appeared—the charge of this new journal, which is designed to be " a weekly journal covering the whole field of education in relation to the problems of American democracy," and " will emphasise the relations of education to the social order, scientific research in education and its applications, freedom of discussion, and reports and news of events of educational interest." The first number appeared on January 2nd, 1915, and opens with an interesting address on " Educational Evolution," by Charles William Eliot, President Emeritus of Harvard University.

We venture to extend a cordial welcome to the newcomer, and to wish it all success. Those who are watching the development of education in America will find it a sound and helpful guide.

I Serve: A Handbook of Personal Service. By George H. Green. Pp. xii., 132. A. and C. Black, Ltd. Price 1s. 4d.

" This little book has been written with the object of leading boys and girls to take an interest in social conditions and problems, and to see clearly their personal responsibility in connection with these," or, as stated in the prospectus, " not so much to encourage charity, as to awaken in children the social consciousness." It is issued with the approval of the The Schools Personal Service Association, and is intended for boys' and girls' own reading. The aim and enthusiasm of the author are admirable, and it is with great regret that the reviewer feels compelled to say that the contents of the book are, in his opinion, misconceived and mistaken, in so far as the book may be used by boys and girls. At the same time it may prove suggestive to teachers who are interested in social work.

The writer attempts to put the philosophy and ethics of the nature of society, rights and duties, charity and charitable societies, prisons, asylums and workhouses, labour and capital, Trades Unions and Friendly Societies, and the social conscience, into a nutshell and in a form suitable to school children. It is impossible to put such matters into a nutshell, and if it were possible it ought never to be done for children. It is not their business to consider the underlying principles of such subjects, nor have they the capacity to do so. How many adults have?

Not enough care has been exercised in qualifying many of the statements made, *e.g.*, " The whole world is really a great club, or association of men and women, working together (p.2)...We are held together by the bond of goodwill " (p. 5). Alas, that it is not so; for how much nearer should we then be to paradise than pandemonium! It is clearly implied that the great majority of people work, in their ordinary business, with the primary and conscious desire for the welfare of others! Again it is said, " Without goodwill we can accomplish nothing great." Is Napoleon an example of this? Such a statement as " The able-bodied pauper is a worthless, lazy fellow, who is anxious only to receive " (p. 18) ought not to have been made, for it is outrageously inaccurate. Besides it is entirely contradicted by what is said on pages 76 and 77.

The subjects proposed, at the end of each chapter, for short papers and debates are in most cases far too difficult for children (or average adults), *e.g.*, " To understand all is to forgive all " (p. 11); "Children are sometimes boarded out with families, sometimes cared for in institutions. Give your [!] reasons for believing one system better than the other " (p. 71); " Account as fully as you can for what is called ' labour unrest ' " (p. 101); and " The difficulty in the way of all social reforms is ignorance— the ignorance of the reformer and the ignorance of the person needing reform " (p. 120). The " List of Recommended Books " are well suited for intelligent adults who have had a good education. The first two of these books, starred as " good ones to start with," are published by the Student Christian Movement—*verb. sap.*

Rousseau on Education. Edited by Professor R. L. Archer, M.A. Pp. xii., 278. Edward Arnold. Price 4s. 6d. net.

Professor Archer says: " The aim of the present selection is not to gather from his writings a consistent theory, which could be better obtained by a collection of extracts from the *Emile* only, but to present passages representative of *all* the fundamental aspects of his educational thought. In particular, it is hoped that they are such as will enable the reader (1) to decide how far the *Emile* is intentionally paradoxical, by comparing it with a few letters of practical advice and with the shorter explanation of his views in *Julie*, and (2) to reconcile the intense enthusiasm which at times he shows for the State with the individualism which is generally regarded as the key-note of his teaching."

The passages translated are from *La Nouvelle Héloïse*, and *Emile*. We are glad to see that Professor Archer, like Miss Foxley and the late Professor Payne, favours a translation as closely literal as is consistent with a clear and accurate rendering of the original. This is the more necessary for his purpose, which is " to give the author's words and leave the reader to form his own conclusions "—with the aid of brief but judicial introductions. This aim is admirably fulfilled, and the book is one which teachers would do well to add to their library.

Publications Received.—*Journal of Education; Educational Times; The American Teacher; The Training School Bulletin; The Journal of Educational Psychology* (U.S.A.); *School and Society* (U.S.A.); *Educational Review* (U.S.A.); *The Bulletin of the American Institute of Child-Life; El Monitor de la Educación Común* (Buenos Aires); *The Parents' Review; Crouch End High School Magazine.*

Child-Study.

The Journal of the Child-Study Association.

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A Mother's First Lessons to Her Child. II.

By Mrs. Alys Lucas.

In the previous article I described certain exercises of the senses and of visual memory that can with advantage be given to the child as definite lessons before he begins to study the ordinary tasks of reading, writing, etc. In this article I propose to describe several more of these exercises, and also to show how gradual preparation for the school lessons may be introduced.

Teaching Control of Movements. One often hears "the clumsy age" referred to by parents in reference to a child who is constantly tumbling over furniture, spilling his food, and breaking whatever he touches. There probably is an age while growth is very rapid when a child's movements are markedly uncontrolled, but are we not as a rule rather unjust to these children? When they are small we constantly call after them, "Don't use the knife, you will cut yourself." "Wait till I come, you cannot pour out your milk yourself." And then suddenly at a certain age we call them clumsy because they cannot use a knife skilfully and habitually spill drops on the table-cloth. Of course we must have regard for cut fingers and soiled table-cloths with the small children. I think we might, however, choose times and places where a mess will not matter, and when we are near to see that serious injuries do not arise, to let a child gradually practise all this fine muscular co-ordination which is required in civilised life. Quite tiny children can learn to carry things carefully with a little patience on the part of the teacher. Much of this teaching will come in every-day life by encouraging the children to take their part in the life of the house.

I have known a boy of three and a half regularly, day after day, clean the lamp glasses without mishap. He had been shown how to sit on the floor and how to hold the glass in one hand and polish it with the other. And I have seen a tiny, not quite two-years-old, lay cups, saucers and plates for nursery tea for six people, because he was encouraged to handle china and shown how to carry each bit carefully.

Now to come to actual lessons and how to teach control over these movements. First give your child a small tray and let him build a house of bricks one storey high on it, then ask him to lift the tray off the table, carry it round the room, and put it down again. When this can be done with success, let the building grow two or three storeys high. Choosing the garden, or a floor that cannot be hurt, substitute a cup of water for the bricks. The cup had better be of enamel to begin with. Give the child also a jug, and make him pour out his own water, carry it round the room, and pour it back again. Countless little variations can be used of course. Carry a full cup in one hand, carry one in each hand, one on a saucer, or three cups on a tray. Let the cups be emptied and filled between each excursion. When the child is fairly steady let him carry the cups up and down stairs. A very good exercise is to space bricks on the floor and get the child to step over one at a time without knocking it over. He should do this first with nothing in the hands, afterwards while carrying a tray. To do this last exercise perfectly is by no means easy.

The important part in first learning to

cut is the consistency of the material you work upon. Meat and bread are both very difficult consistencies for a child to start with. Plasticine is an excellent material, it cuts very easily, yet the knife has no tendency to slip. Let the child make long rolls of the Plasticine and cut them into lengths. The mere joy of cutting will be enough for a long while, afterwards you can elaborate the lesson by showing him a certain length, a brick or some such thing, and asking him to cut a similar length off his roll. When he is fairly reliable with the Plasticine a crisper material should be used. Bananas are excellent for cutting, but we can scarcely supply enough of them to satisfy a child's pleasure in chopping things to pieces. Raw potatoes are much cheaper and also very suitable. At first it is best to cut the potatoe into large bits before the child uses it, as the knife is apt to slip on the rounded surface of a whole potatoe. It is wonderful how soon a child makes himself independent at meals with a little training like this; he spreads his bread and jam and helps himself to milk with very few mishaps.

Teaching Oral Description. A lesson of very great moral importance I have adopted from Mrs. M. E. Boole in her book, "The Preparation of the Child for Science." The aim of this exercise is to train a child to give a concise and accurate statement of facts. A lesson a good many adults would be the better for learning! The way I teach it to my children is as follows:—They pretend they are dispatch riders and come to me, the officer, for orders. I say to one, "Go up the stairs into the bath-room and wash your hands, wash one hand with toilet soap and the other with Monkey Soap, then tell me which soap cleans best." Then to the other child, "Go out doors to the front gate and see how many things with four legs you can see." With grave faces they both go their different ways. The first comes back, salutes and stands straight before me saying, "I went up stairs into the bath-room and washed my right hand with Pear's Soap and my left with Monkey Soap. The Pear's Soap one came cleanest." The other boy comes in and reports: "I stood at the gate and saw three animals with four legs." I have given perfect answers here as an example, imperfect ones most often contain irrelevant information. "I went up stairs to the bath-room and found pussy asleep in the chair, and I washed my right hand," etc. When this occurs I say, "Tell me about the cat afterwards; I want to hear about it, but it does not belong to your message."

The power of appreciating what is irrelevant is one adults are very often deficient in. One has only to listen at a police court during a trial to hear what utterly contradictory statements two people can give about a series of events they both witnessed; each person honestly believing all the while that their account states the whole truth. The habit of mind induced by being accustomed to give descriptions accurately, consecutively, and without irrelevance is of great moral value through life. It encourages a man to be logical in his own thought and honest to himself. It safeguards him from being carried away by the newest wind of doctrine, and teaches him to distinguish between truth and plausible sounding doctrines originating in false reasoning and confusion of thought.

Teaching Number. A child between four and five years old will naturally pick up number names himself and show spontaneous interest in simple arithmetical problems. He will probably confide to you with great earnestness, as is befitting to the announcement of a great discovery, that either two and two or three and one will make four.

The fact that a child is interested in a subject is usually, but not always, an indication that it is the propitious time to begin to teach it. In arithmetic I feel this is certainly so, because of the advantage of approaching the subject in the best way and of avoiding the need of unlearning in later years.

That it is particularly easy to begin in the wrong way is illustrated by the very

first step of all in arithmetic, enumeration. It is certainly advantageous to learn to regard the numbers as belonging together in groups of ten, but a child will not think of numbers spontaneously like this. Six or seven may be numbers in his mind that break up the series because he happens to be six years old or has seven soldiers. It seems clear that as soon as a child begins to find interest in counting we should see to it that he does it in the best way.

After my child had taught himself the number names up to six I taught him the further ones gradually up to one hundred by means of a special series of bricks. I had made ten cubes ½in. × ½in., in American white-wood, also five bricks ½in. × 1in., five ½in. × 1½in., and so on, each set of bricks being ½in. longer than the predecessor. The series ended with ½in. × 5in. Of these last I had ten. Then I had two long bricks ½in. × 25in. Using the cube ½in. × ½in. as the unit, I taught that two was represented by the brick of ½in. × 1in., three by the next in size and so on. It is at once seen that the ten bricks ½in. × 5in. represent tens, the two long ones fifty. It may be asked what is the advantage of this method over the usual one of teaching counting by loose units such as a bag full of beads or beans.

Teaching Relative Magnitudes. If arithmetic is simply a study of number, the usual way suffices. Arithmetic should then be very easy to teach and should not need to occupy much time in the ordinary school course. If, however, it is the science of relative magnitudes, the whole aspect is at once changed. The conception of five as five separate units, one and one and one and one and one, is what is wanted for the first view of arithmetic, the conception of five as a relation, a ratio of five-ness to one-ness is the essential for the second view.

In these rods the mind is drawn off from viewing five as five units, and sees it as a magnitude possessing a definite relation to the unit one. This conception may be enormously strengthened by taking various rods at different times to represent one. Thus after the ordinary enumeration has become familiar place on the floor one day a "five" rod, a "ten" rod and a "twenty" rod composed of two tens end to end. Then, pointing to the "five," say, "Now to-day this one is going to be called "one" for a change, what is this one then? (pointing to the "ten"). I have never found the smallest hesitation in the child's mind; he says "two" at once. With a child of four who could only count up to ten I took the "four" rod as my unit, and calling it "one," asked him to name the "two" and the "one" rods; the answer came at once, "That is one half and one quarter." It is clear that the child here gets hold of the essential idea of ratio, quarter and half, five and ten, fifty and one hundred all represent to him a ratio of one to two. All this practice in the idea of ratio can be taught to a child of from four to five as part of learning to count.

The teaching of ordinary addition is beyond the scope of this paper. It should not be encouraged at this age. But a foundation for addition can certainly be laid now. Show the child a "six" rod and ask him to lay beside it another just as long made of two bits. He will find that a "five" and a "one," a "three" and a "three," and so on will satisfy this condition. Do not for the world ask him for the mental abstraction that five and one make six; let him simply prove the fact to himself.

Various little sums can be done in this same way, always remembering to say, "Look and see how long two and two will be"; never say, "What do two and two make?"

Teaching the Beginnings of Real Mathematics. So far we have only dealt with the very simplest of arithmetical processes, but I believe our responsibilities at this age extend into laying a foundation for real mathematics. For those of us who see in the study of mathematics one of the finest opportunities for equipping our children for independent search after truth, the prospect is rather alarming. Many are the books written for advanced students, but these will not help a mother

of a child of five. It is clear at least that the usual school treatment of mathematics is most inadequate. A vast superstructure of information is built up in the child's mind, the weakness of the foundations of which is seen in the inability of the child to apply his knowledge to every-day life, and in the perfect self-complacency with which he regards some obviously absurd result he has arrived at owing to some error in his process. Can we at all analyse what the mistake is, and how this subject gets confined to some watertight compartment of the brain, and so utterly misses its real aim.

Thinking of the processes which underlie the production of thought, other than mathematical, in the individual, we find the foundations laid in sense perceptions. Can this throw any light on our problem and show us how to help mathematical thought to evolve along saner lines? I will briefly describe my efforts in this direction, but as the results on the child's future outlook are hidden in the future, they can be only taken as suggestions. What I tried to do was to make the children familiar by touch and sight with properties they will be asked to deal with mathematically in later life.

It is characteristic of us that we usually teach our children while they are young only the sequence of arithmetical progression, the one, two, three of arithmetic; we leave them to become acquainted with the progression of squares and cubes at a very much later date. Yet there is no reason for this except that of convention. Let us now put before the child a quantity of those inch cube bricks we used for visualising purposes as described in my former paper. Give him two or three and ask him, "Can you make a square with these?" "No!" "Well, take one by one from the pile and show me when you have made a square." When he has arranged the four in a square ask him to make you a bigger square, and then a still bigger again. Do not ask him to tell you how many he has used for any of these squares. Call them the two square, the three square, and so on, pointing out to him those are the numbers of cubes in the first line of each. Let him simply get used to the look of the relative sizes of these squares and the way in which they increase.

When this has been done several times we can introduce cubes. Behind the two squares that the child has just laid out on the floor ask him to build a cube with the same sized square at the bottom. (I am presuming, of course, that the child has a perfectly clear idea of a cube.) Very likely when he comes to build the "three" cube he will build it only two storeys high as he just did with the "two" cube; do not correct him yet, let him have every chance of correcting himself; if he builds the "five" cube only two storeys high it will probably occur to him that he has gone astray. If he does not see his fault, ask him the difference between a cube and a square. He will answer somehow like this, "A cube is square all round." "Very well, is this a cube?" Then he will see for himself that his definition and his practice do not agree. Again let me insist that no attempt be made to get a child to count the units he has used in building any of these forms. Let him simply get familiar with the look of the progressive sizes of the cubes.

I am at present engaged in considering the possibility of introducing a child to cubic contents on somewhat the same lines. My idea is to get made a series of hollow copper forms. One series is comprised of three spheres, the middle one holding twice the volume of the smallest, the largest holding four times the volume. These spheres are to be made with a hole in one place with a small rim round it to allow them to be filled and emptied with water. There is to be also one hemisphere the size of half the middle sphere. Also a series of hollow cubes bearing the same relation to each other as the spheres do, also a set of cylinders corresponding in their relations to each other. The smallest sphere, cube and cylinder shall all contain an equal volume.

Without going into more precise descriptions, it is easy to see the use these

can be put to. Starting with a unit of water corresponding to the volume of the smallest of one series, the child can pour it into any of the three forms and prove to himself that despite their differing shapes their volume capacity is the same. Also for example he can take the amount of water contained in the second sized sphere and see that half of it will fill either the hemisphere or the smaller sphere. I should introduce this simply as a game for playing with water and pouring out neatly. The impressions the child receives will sink into his mind without any words from us, and in later years cubic capacity will have a fuller meaning to him, and call up pictures in his mind far more accurate and faithful than those of the child who first approaches this subject through a text-book.

The very best introduction to mathematics has been worked out by Mrs. E. M. Boole by means of her sewing cards for young children. To understand the principles that underlie these I must ask the reader to go to the book by E. L. Somervil in which she has explained and illustrated the theory and the working of Mrs. Boole's sewing cards. The book is called "A Rythmic Approach to Mathematics," and is published by G. Philip and Son, Ltd. Little children of the age we are considering are incapable of making geometric designs by drawing, they cannot produce a straight line, but a needle and thread passing from one hole through another on a flat card of necessity proves a perfectly straight line. With this medium the children learn by faithful obedience to a dull little rule of how to set the stitches, to evolve parabolic curves and other beautiful geometrical forms. The work is most fascinating, and proves enormously attractive to children about five years old and onwards. In a short while they begin designing the treatment of geometrical figures themselves.

My boy of five came running up to me one day, brimming over with excitement, saying, "What do you think? I made a parabola in each corner of a pentagon, and it has turned its middle into a circle."

However, the use of the cards does not end with this familiarity with geometric forms, or even the great educational value of encouraging the child to freely create and express himself, or even with the unconscious introduction the child receives as to the beauty produced by law. By it we can bridge over the apparent chasm between laws of number and form and the processes of human thought. This is best shown in teaching the child to work on his card the curve the pursuit, at the same time demonstrating its invariable application in actual life. Any frosty morning when running on the whitened grass a child may be shown by his foot-marks how he followed unconsciously the familiar curve. In summer time the sea sand may illustrate it, or failing that let the child have a bag full of beans and mark his path by dropping these as he runs. It is difficult to over-estimate the advantage gained in thus early showing the child the vital relationship between mathematics and life.

Before ending these suggestions on mathematics let me mention another lesson suggested by Mrs. Boole. This consists in shadow throwing: a most entrancing pastime. I have had made a small wooden table, 5in. × 6in. × 6in., with a transparent glass top. Under the table I spread a sheet of white paper. On the glass I stand one or two wooden geometrical solids, such as may be obtained at most educational supply stores for a small sum; over the table hangs an electric hand torch. The shadows thrown on the paper prove most interesting to small people. That a circle, a cylinder, a cone should look identical in one position and so different in another is amazing. I have seen a small boy having projected the shadow of a wire ring, tip the ring and cause the shadow to illustrate a series of eclipses, and finally a straight line; he then took a steel knitting needle and had a long attempt to make it do likewise and project eclipses and a circle. This familiarity with solids and their plane projections cannot fail to put life and reality into the study of the subject when the time comes for the study of solid geometry to begin.

Before I conclude this paper may I once more ask that all I have said shall only be treated as suggestions for other workers? Every mother or teacher should think out for herself what are the desirable qualities to be encouraged, and she should then carefully consider the ceaseless activity of the four-year-old and see where and how some of that energy may be led into these profitable paths.

P.S.—The bricks mentioned in these two papers were made for me at the Disabled Soldiers' and Sailors' Workshop, Brompton Road. They were most accurately and economically done.

Binet's Mental Tests; What they are, and what we can do with them. IX.

By W. H. Winch, M.A.

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In pursuance of the plan indicated in the seventh and eighth articles, I continue my account of the work done with Binet's Tests in the three selected infants' schools before proceeding with the results of the tests in senior departments. This procedure will involve the treatment of the tests for ten-year-old children in connection with the work in infants' schools. It is well to see what clever young children can accomplish, even with the mental tests which are normally suitable for children who are two or three years older. For children of ability should pass rapidly through the lower sections of the senior school, assuming that due care is taken that their physical growth and health are not thereby endangered.

Binet's First Test for Ten-year-old Children is concerned with the child's knowledge of the months of the year. The names of the months, Binet says, must be given in order, "*sans faute, oubli ou omission et assez rapidement, en* 15" *au maximum: nous tolérons cependant l'erreur d'un oubli ou d'une inversion.*"

The child is asked to repeat the months of the year. He must not take longer than fifteen seconds, and also, in order to "pass," he must not make more than one omission or one inversion.

Binet's directions were rigidly observed with the English children (seven years of age) who attempted the exercise. There was a difficulty in respect to the time limit. It appeared to be too restricted for those children who had, as it were, to think the thing out as they went along. Moreover, it seemed to be a test whose results depended very largely on whether the children had been trained in any way to repeat the names of the months in order.

Only twenty-eight per cent. of the children were able to satisfy the conditions of the test. Some of them required "starting," and even then could not proceed; others could give no answer; others "dodged about" in the naming of the months; and a considerable number gave two omissions which were not consecutive. For example, a child would say, "June, August, September, November, December." I do not think that, as a mental test, the exercise appears to be a very good one for young children, though I can quite well apprehend its value for older persons, provided that no instruction other than that which is involved in the ordinary experiences of life had been given.

Binet's Second Test for Ten-year-old Children requires the naming of nine pieces of money. The coins used by Binet are: five centimes, ten centimes, twenty-five centimes, fifty centimes, a one-franc piece, a two-franc piece, a five-franc piece, a ten-franc piece, and a twenty-franc piece. The money is placed on a table. The succession of the one and two-franc pieces is avoided, and also the succession of the ten and twenty-franc pieces. The order in which Binet placed the coins was as follows: ten centimes, a two-franc piece, a ten-franc piece, fifty centimes, a twenty-franc piece, one franc, a five-franc piece, twenty-five centimes, and five centimes. They are placed with the effigies uppermost. The experimenter does not pick up the coins; he points them out with his finger, and the child names them without touching them. In order to "pass" the

test, the child is required to name all the coins without error, and the time limit for the exercise is forty seconds.

Very often, says Binet, a child calls a two-franc piece one franc, and a piece of ten francs twenty francs, or *vice-versa*. These are not bad mistakes. Serious error consists in giving the names of non-existent coins, such as "three francs" or "fifteen sous." If a "slip" is suspected the experiment may be repeated. Binet instances the case of a boy whose only mistake was made in connection with the five-franc piece, which he called ten francs. When asked to repeat the test after some some minutes' interval, he made the same error again, and consequently did not "pass."

This test was carried out with English children of seven years, strictly in accordance with the directions laid down by Binet. But, of course, it was necessary to substitute English coins for the French ones used by him. We used the following coins, placing them in the order indicated: a penny, a two-shilling-piece, a half-sovereign, a sixpence, a sovereign, a shilling, a five-shilling-piece, a threepenny-piece, and a halfpenny.

As no error was allowed, this exercise proved very difficult for the seven-year-old English children; only eight per cent. of them could name correctly all of the nine pieces. One boy made one of the serious mistakes mentioned by Binet: he called the five-shilling-piece "seven shillings"; and another child went also wide of the mark in calling the sovereign "sevenpence."

The following analysis of the work done in the "intermediate" school throws some light on the difficulties of the exercise. The penny was named correctly by all the children. Forty per cent. named the two-shilling-piece correctly, the remainder, in approximately equal numbers, called it a shilling and half a crown.

The sixpence was named correctly by over ninety per cent. of the children; the remainder called it "a shilling."

The sovereign was very variously called: sixty per cent. named it correctly; one child called it "a pound," but all the others who "passed" said "sovereign." A few children called it "two shillings," a few said "sixpence," a few said "a halfpenny," and one or two children said "half a crown," "threepence," and "shilling."

The shilling was correctly named by all the children.

The five-shilling-piece, as might have been expected, was very unfamiliar, only thirty-six per cent. of the children could name it correctly; of these, two boys called it two half-crowns. The commonest error was to call it half a crown. One or two children said it was a shilling, two or three other children called it four shillings, and others said "two shillings," "threepence," "a sovereign," and "seven shillings."

The threepenny-piece was correctly named by half the children; about forty per cent. said it was sixpence, and it was called also a shilling and half a sovereign.

The halfpenny was known quite well; all the children named it correctly.

The half-sovereign was rightly named by over fifty per cent. The commonest error was to call it sixpence; the other errors, were, in order of frequency, a sovereign, a farthing, half a crown, and a threepenny-piece.

Summarizing the answers, we find that: The halfpenny was correctly named by

				100%
The penny	,,	,,	,,	100 ,,
The shilling	,,	,,	,,	100 ,,
The sixpence	,,	,,	,,	92 ,,
The sovereign	,,	,,	,,	60 ,,
The half-sovereign	,,	,,	,,	56 ,,
The threepenny-piece		,,	,,	52 ,,
The two-shilling-piece		,,	,,	40 ,,
The five-shilling-piece		,,	,,	36 ,,

The sixpence received two names, the sovereign eight names, the half-sovereign six names, the threepenny-piece four, the two-shilling-piece three, and the five-shilling-piece eight names.

I am very doubtful about the use of this exercise as a "mental test"; a few, a very few of these seven-year-old children were successful, and it is a test which is very susceptible to school instruction. But it

will be better to postpone our decision with respect to this exercise until the results from senior schools are dealt with.

Binet's Third Test for Ten-year-old Children is an exercise in verbal composition. The child is required to place three given words in a sentence, or, more strictly speaking, in not more than two sentences. Binet tells us that this is the first exercise in his series of tests in which inventiveness has been called for, an inventiveness which, in this case, is linguistic. The child must be able to talk, to write, and to know the meaning of the word "sentence." He directs the experimenter to write on a piece of paper the three words: "Paris," "Fortune," "Ruisseau." He must read these words to the child several times, and tell him to make a sentence containing the words. Then he hands the child a pen. Binet adds that the words "Make a sentence" are often not understood; but no further explanation may be given; the instructions, however, may be repeated. Some children understand, but do not succeed in making any kind of sentence, or, at least, any which satisfies them. As these latter are perhaps over careful, the experimenter must insist that they write a sentence of some kind. The sentences which are actually written by the children may be divided into three groups:

1. Those containing three distinct ideas without connection. For example:

(*a*) Paris is a town, a man has a fortune, the stream flows.

(*b*) Paris is a little town, a fortune is a lot of sous, a stream is a little river that runs by the side of a footpath (*trottoir*).

2. Those containing two ideas. For example:

(*a*) In Paris there are streams, and people who have a big fortune.

(*b*) Paris possesses streams and a fortune.

3. Those containing one idea only. For example:

(*a*) The Seine is a stream which gives Paris a fortune.

(*b*) At Paris, in a stream, I found a fortune.

Commenting on these types of sentences, Binet says they afford us a means of distinguishing several stages of intellectual level. Referring to the second and third types, he states that at seven years children never succeed in making sentences of this kind, because, at that age, they cannot write well enough. At eight years of age no one, or scarcely any one, succeeds. At nine a third, and at ten a half, are successful. There are some children who can place the three words in a single sentence, but they construct a sentence void of meaning, and write it down without thinking whether it is intelligible or not; as, for example, "Paris is a great fortune which has a big stream."

Binet allows one minute, and if, at the end of that time, the sentence is not written, or at least three parts of it, the child is considered by him to have failed in the exercise. Sentences of types 2 and 3 are considered satisfactory, but not those of type 1.

This test was applied to English seven-year-old children in infants' schools on the lines laid down by Binet, but the words "London," "rich," "river," were substituted for "Paris," "fortune," and "Ruisseau."

Binet states that no French children of seven years of age can pass the test. Doubtless the substitution of the word "rich" for the word "fortune" accounts for some of the differences found; but our seven-year-old children *can,* in a good many cases, write well enough to pass, if they can think of a satisfactory sentence. Twenty-eight per cent. of our seven-year English children succeeded in satisfying the test. The following are some of the sentences written by them:

1. London is a big place and has a river in it and some rich pepol live there.

2. There are many rich peple in London there is a big river in London.

3. London is a very warm place and there are some rich people, the river tens (Thames) is in London.

4. In London theres a river and rich pepol go to the river to go in a boat.

5. In London there is a river and some

of the peple in London are rich.

6. London we like becesins (because) the river is long and London is rich.

7. The river takes the boats along the water. London is our country, and it is a big country some other country are biger and ours.

8. Rich people and poor people and old.

9. We live in London the ships float over the river some people are rich.

10. London is a place where houses are some men are rich. river has a lot of water.

11. London river rich is ware nice shops are.

12. We livs in london, the ships front on the river. rich parents go in trains.

There is no difficulty in deciding that the sentences, or combination of sentences, marked 7, 8, 9, 10, 11, 12, do not satisfactorily reach the required standard. On the other hand, the sentences marked 2, 4, 5 and 6 quite obviously do. They contain more than one sentence or clause; but the ideas are, in Binet's words, well co-ordinated—grammatically speaking, of course, a complex sentence is one sentence. There is no difficulty in such cases. But in sentences 1 and 3 there are three principal sentences, not two, as Binet allows. What shall we say of such sentences as these? Personally, I should "pass" them. These compound sentences are built up round the word "London," and the ideas are "well co-ordinated" in Binet's sense.

The statements that "London is a big place" and that "London is a warm place" are rather irrelevant, it is true, but they do not prevent the reference of "rich" and "river" to the notion of London. In many of our schools children of seven write "composition," which apparently was not the case with Binet's Paris children. This is probably another reason for the superiority of the English boys and girls. But, of course, all the answers were not as good as those I have cited; some seven-year-old children just copied the three given words, others wrote words without any intelligible sequence.

The exercise is a good one (in a much extended form, with a quite different and graded system of marking, I have set it to thousands of school children), but it is susceptible in result to different kinds of pedagogical instruction. It is not *extra-scolaire,* but it is an exercise which depends so much on natural imaginative ability that I think that in this or in another form it should be retained as a "mental test." I cannot *place* it in its appropriate year before giving results from senior schools, but it is clear that some of our seven-year-old children can pass, and I suspect that it can be done by the majority of our children before ten years of age. It is indeed not quite clear why Binet, on his own facts, should call it even a ten-year-old test, for he says that only half of his children of ten succeed. A much larger proportion is required to constitute it approximately a ten-year-old test.

Binet's Fourth Test for Ten-year-old Children is called by him "Questions of Comprehension." They are questions, I should rather say, of practical and ethical judgment. The child is required to say what he ought to do if he:

1. Misses a train.

2. Is unintentionally struck by a playmate.

3. Breaks an article belonging to another.

Binet gives instructions to the experimenter and some "good" and "bad" answers.

The experimenter says:

1. *When you have missed a train, what ought you to do?* Good answers are: "Wait for another train," "Take the next." Bad answers are: "Run after it," "Go home," "I must buy a ticket."

2. *When one is struck by a friend without his meaning to do it, what ought you to do?* Good answers are: "Do nothing," "Pardon him," "Tell him to be more careful another time." Bad answers are: "Tell the master," "Punish him," "Have revenge." Binet thinks that these answers arise from the non-comprehension of the unintentional nature of the blow.

3. *When you have broken something which does not belong to you, what ought you to do?* Good answers are: "Pay for

it," "Excuse myself," "Replace it," "Confess it." Bad answers are: "Cry," "Go to the commissaire."

Binet leaves it to the judgment of experimenters to class other answers in accordance with the indications which they may gather from his examples. Sometimes, he says, a child of six can reply in a satisfactory manner; that is, can give "good" answers, but this is rather rare. At seven or eight years half can reply suitably, at nine three-quarters can do so, and at ten years of age all children can do so. At least two good answers must be given out of three in order to pass.

In taking this test with English children the questions were asked in the following form:

1. *When you have missed a train, what would you do?*

2. *When a boy or a girl hits you, without meaning to do it, what ought you to do?*

3. *When you have broken something which does not belong to you, what ought you to do?*

Binet's standard was maintained, that is, two answers, at least, were required to be classified "good" in order for a child to pass.

The following are instances of "good" and "bad" answers:

"Good answers to Question 1. 1. Wait till another one comes up. 2. Wait till another train comes. 3. Wait for another train. (This form of words was used by over twenty per cent. of the children.) 4. Wait for another one. (These words were used by about thirty per cent.) 5. Sit on the platform till another one comes. 6. Wait till the next one comes. 7. Wait at the station for another train. 8. Sit down on the seat and wait for another. 9. Stop for another train. 10. Wait for another to come along.

"Bad" answers to Question 1. 1. Wait till to-morrow and get it then. 2. Walk. 3. Go home.

Two considerations emerge on reading the answers: Firstly, that the answers are remarkably uniform; and secondly, that the "bad" answers are conceivably, in certain circumstances, not at all bad. But probably Binet is right in regarding these answers as unsatisfactory on the basis of the child's experience and knowledge.

"Good" answers to Question 2. 1. Let him off. 2. Was that you who hit me? Oh! and have a game with her. 3. I wouldn't hit him. I would still play with him. 4. Play with him. 5. Play with her. 6. I wouldn't mind. 7. Tell her she couldn't help it. 8. Go on playing with him. 9. Say he couldn't help it. 10. Nothing. 11. Make it up with him. 12. Play with him again.

"Bad" answers to Question 2. 1. Tell my mother. 2. Tell her mother. 3. Hit him back. 4. Walk along the street away from her. 5. Tell teacher. 6. Cry.

There is little doubt that the answers classified as "good" indicate a more developed type than those classified as "bad." They are more developed ethically. I should not be prepared to advance the contention that in adult life the more intellectually developed are always those who show the greatest ethical advance. Nor indeed, as far as ethical practice is concerned, should I expect the correlation in school-children to be very high. But, theoretically, the abler children intellectually do absorb an advanced ethic more readily than duller children. Whether they would do what they say they ought to do is, as indeed is the case with all of us, another question. It is something, however, to have the better ethics, even as a mere statement of what *ought* to be done.

"Good" answers to Question 3. 1. Buy another one. 2. I would pay for it. 3. Pay for it. (Twenty per cent. used these words.) 4. Pay the money and buy another. 5. Blame it on to myself. 6. Tell them I had done it. 7. I would go and tell them. 8. Go and tell their mother. 9. Tell the lady I was very sorry. 10. Buy another one—save up my money. 11. Go and tell them. 12. Go and tell them I broke it. 13. Tell the lady you broke it. 14. Give him another thing back.

"Bad" answers to Question 3. 1. Cry and tell mother. 2. Run indoors. 3. Pick it up and throw it in the dustbin. 4. Tell

your mother. 5. Cry. 6. Go and tell your mother.

No less than eighty per cent of our English seven-year-old children "passed" the test, so that with English children it is evidently possible to use this "test" at a much earlier age than that at which Binet found it suitable for French children.

Binet's Fifth Test for Ten-year-old Children is a second series of what he calls "Questions of Comprehension." They are harder, he says, than the first series, and present some difficulties of vocabulary. Numbers 1 and 2, it seems to me, are questions of practical judgment; number 4 is rather ethical in nature; and numbers 3 and 5 are psychological, number 3 possessing also an ethical aspect.

I have translated Binet's questions and answers as follow:

1. *When you are getting late for school, what should you do?*

"Good" answers are: "I must make haste," "I must run."

"Bad" answers are: "Get punished," "Start earlier next time."

2. *Before undertaking some important business what should you do?*

"Good" answers are: "Think about it," "Study the matter," "Ask advice."

"Bad" answers are: "Take care of those who are ill," "See the doctor," "Go away."

Binet says that his "bad" answers show that the children have not understood the question.

3. *Why would you rather pardon a bad deed done in anger than a bad deed done without anger?*

"Good" answers are: "Because when one is angry one does not mean to do it," "In anger, one is not responsible," "When one is angry, one does not know what he is doing."

"Bad" answers are: "When one is angry, one does not wish to listen," "One ought not to be angry."

This, says Binet, is a very difficult question; it is necessary to see if the child seizes the notion that anger constitues a kind of excuse.

4. *If someone asked your opinion about a person of whom you knew very little, what should you say?*

"Good answers are: "I ought to say nothing," "I cannot speak without knowing."

"Bad answers are: "I ought to ask him," "I must answer," "Say to him be careful," "Say that I do not know his name."

5. *Why ought you to judge a person by what he does rather than by what he says?*

"Good" answers are: "Because words lie and actions speak the truth," "Because actions are seen better than words."

"Bad" answers are: "You must not lie," "Because one does not know."

Binet allows twenty seconds for thought over each question, and the child is considered to have "passed" if he succeeds with three questions out of the five. At seven and eight years of age no one answers satisfactorily the majority of this second series of "Questions of Comprehension," and even at ten years of age scarcely a half reply suitably. The test is one of transition between the ages of ten and eleven, Binet thinks, and is an excellent test of what is ordinarily known as "intelligence."

This test was applied to seven-year-old children in infants' schools, and Binet's estimate of what French children can do at this age applies equally to English children; for no child of this age was able to give as many as three satisfactory answers.

In order, as far as possible, to eliminate the difficulties of vocabulary, I did not, in every case, use the translations which I have given of Binet's questions, but modified them somewhat, as follow:

1. *When you are getting late for school, what should you do?*

2. *If you had to do something very important, what would you do before you set about it?*

3. *Suppose somebody does something to you whilst they are angry with you, and someone else does the same thing to you without being angry with you, whom would you sooner let off?*

4. *If someone asked you what you*

thought about someone you knew very little, what would you say?

5. *How can you tell better what someone is really like, from what he says or from what he does?*

"Good" answers to Question 1. 1. I wouldn't stop away, I would run. 2, Run. (About thirty per cent of the children said this.) 3. Get a bus. 4. Run to school. 5. I wouldn't stop at home, I would go to school, I would walk quickly. 6. Have to run.

"Bad" answers to Question 1. 1. I would tell mother. 2. Come early all the other times and make up for it. 3. Get the cane. 4. Get a black mark. 5. Be early the next time to make up for it. 6. Go back home again. 7. Tell teacher why I was late. 8. Have a black mark and go in the hall. 9. Go home. 10. Be early next time. 11. Go home again.

"Good" answers to Question 2. 1. Get ready to do it. 2. Get ready.

"Bad" answers to Question 2. 1. Run away. 2. Ask if we can take it.

No other answers were given; the question was quite beyond the children in almost every case.

Answer to Question 3. Be kind when they are angry, and be kind when they are unangry.

This was the only answer given to question 3; it was obviously quite beyond the mental range of these children.

"Good" answers to Question 4. 1. I don't know much about them. 2. Say we haven't known them very long. 3. Say I don't know them. These were the only answers given to the question.

Answer to Question 5. To see if they know what I mean. Only one answer was given to this question, and it was unintelligible as an answer.

It is useless to apply this last test, namely, the second series of practical questions, even to the ablest children in infants' schools; and I cannot "place" it until the work of older children has been considered.

The next article will deal with the results of the application of the Binet Tests with eight-year-old children in senior schools.

An Appeal for Co-operation in Research.

By Cyril Burt, M.A.
(Psychologist to the L.C.C.)

A Research Committee of the Child-Study Association has recently been formed. Its object is to apply the exact methods of modern anthropology and psychology to the study of the physical and mental development of the child. It is earnestly hoped that as many members as possible will co-operate with the Committee in the collection of data upon a careful and extensive scale.

It has been decided to commence with the establishment of "norms" or standards of normal performance for various ages in the child's life; and various members of the Committee have undertaken to draw up tests of the more important mental processes that lend themselves to investigation, by different observers working in co-operation. The first of these is now ready. It deals with the accuracy of children's reading. The mistakes made by children in reading simple prose present many curious and instinctive phenomena. Many of these, of course, are obviously attributable to unfamiliarity. But no one at present can say precisely how many words, or what kinds of words, are familiar, for instance, to the average child of eight; nor what variations we may expect with differences of social status, physical environment, or teaching methods.

There are, again, many types of words which present unusual difficulty to the child, and others again which are easily and early acquired. Yet no one can say precisely which types are learnt last, or in what order the several types may most naturally be approached. Perhaps most interesting and most puzzling of all are those mistakes which seem to depend primarily upon the internal reading mechanism of the child's mind. Every teacher knows how certain children will persistently read "on" for "no," "was" for "saw," "left" for "felt," "god" for "dog." Such "reversals" form one obvious category of mistakes. But the precise reason for their occurrence has

never been formulated. Nor has anyone ascertained which direction the reversal most commonly follows; or at what stages of a child's progress it most commonly arises.

Other mistakes occur with even greater frequency. In a certain passage it was found that, of young children of different schools, ages and sexes, more than half read " struck " for " stuck," "laborous" for " laborious," " misser " for "miser." Other substitutions were more rare, but equally curious. " The knight then cut out the dragon's tonsils," read one little girl, substituting " tonsils " for the more familiar word "tongues." Another persistently substituted " Jenny " for "James"; it proved that her favourite companion was named Jenny. Here is a little evidence in favour of the Freudian doctrine. That doctrine teaches that every slip of the tongue has its ultimate origin and explanation, not in chance, nor even in the confusions of the intellect, but rather in emotion, and particularly in unconscious reminiscences of half forgotten emotional shocks.

In other cases, however, the origin seems to be of a far more mechanical nature: " fount " is read for " font," " king " for " monarch," " Willie " for " William," " such golden " for " such a golden," " old woman " for " old man." The same mistakes are made by various children of different temperament and different emotional experiences. It seems, therefore, impossible to assign them to special occurrences in the individual's past life. The manner in which the word-shape, or the drift of the sentence, is apperceived seems rather to be the determining factor.

It will be seen that the problems raised are not only numerous but of great interest. A special passage of prose has, therefore, been compiled which may elicit mistakes of different types with different children. Words of every degree of difficulty have been carefully selected, some because they have proved particularly prone to occasion errors, others because they represent certain difficulties of orthography, or typical modes in which sounds and syllables are combined in the English language. These words have been included in a story, progressively increasing in difficulty. The whole has been tested and re-tested with different children by expert teachers; and has eventually been printed in carefully selected type for distribution among the members of the Association.

It is hoped that members will apply for copies, and, with their aid, test a fair sample of the children accessible to them: for instance, all the children of a given age attending a given school. The errors made are to be carefully recorded; and the records returned. The results will be analysed; and the analysis eventually published in *Child-Study*. It is hoped, too, that members who are interested in the theoretical side of the investigation will offer their services in counting and classifying the various errors recorded in the papers returned.

The test-sheets, together with full instructions, may be obtained upon application to the Secretary of the Child-Study Association, 69, Hosack Road, Upper Tooting Park, S.W.

Parent Educators.

By Professor Bidart.

Translated by Miss M. S. Ryan, B.A.

5. *The Training of the Will. "The will is the great world-lever."* It is not sufficient to will to do a certain thing; there must also be the ability to carry out the intention. This power or energy, shown in the performance of a resolve, is will properly so-called. Since all energy increases by exercise, the only method of strengthening the will is to give it plenty of *exercise*. It is not fully realised that the will is first exercised by acts of obedience, that is, of an obedience which is both voluntary and sustained. After all, what is the meaning of possessing a will? Is it not that a person wills very strongly what he desires? Now, the child who is obedient shows strength of will because his particular desires must give way to an idea. Self-

control alone can bring all parts of a nature into harmony.

Let us be quite clear on this point. What a child has to learn is not precisely to obey, but to be willing to do what he is asked to do. Obedience is only the means, the personal act of will is the goal, to ensure attainment of which there is only one way, namely, to leave children from a very early age to govern themselves within certain limits. How far we are still from recognising the wisdom of such treatment! "You may eat so much and not a bit more...You can walk on the lawn as fast as this, but not any faster; you will get too hot." These are the directions we give to our children. You might train a horse for the riding-school by this method, but not a human being for daily life. The man who has never been left to govern himself learns only to obey, that is, he always expects from someone else the word of command. He becomes a machine, a well-regulated one, no doubt, but one that regularly needs winding up. How little prepared for life is the man who as a child has always been kept tied to his mother's apron-strings!

Let us consider what we, as parents, gain by acting differently. "If you do not give your child that amount of legitimate liberty which his powers and activities demand, he will employ such activities to escape your control. Thus a breach of discipline will, from his point of view, be the proof and also the satisfaction of the liberty which he has won. It is better to grant at once as much liberty as the child has a right one day to claim, so that he may accept it as a boon from us, and that we may be able to impose our conditions upon it" (Mme. Guizot). We ought presently to be able to say to our child, "I have formed you for yourself, not for my own pleasure. Instead of trying to keep you subject to my will, I wanted to set you free as soon as possible. Show yourself worthy of the liberty I offer you."

Obviously the transition from the period of obedience to the state of liberty must be made gradually. The child must first form good habits in the course of his repeated acts of obedience, then, as his reason develops, occasions for demanding his obedience can become more and more rare, and opportunities for him to exercise his liberty more and more frequent, until finally we arrive at a stage at which commands are never given, unless in very exceptional circumstances. These are the three steps in the training of the will.

It is to be observed that the child who is left to govern himself is not necessarily abandoned to licence. He is left to his own resources only in so far as he is capable of extricating himself from difficulties. Should he fall into error, we have still a right to correct him. We must avoid extremes. One extreme is to deprive the child of all initiative. The other is illustrated in the following remark: "It's his affair; let him get out of his trouble as best he can, it's nothing to do with me." The child's apprenticeship to liberty must be prolonged and surrounded by many safeguards.

How far is the child to be left free? In everything save that which will do him harm.

1. *In his movements.* Never force him to walk if he wants to exercise his hands and arms; do not keep him from a walk in order to make him do something else. If he wants to walk by himself, why not let him do so?

2. *In his games.* Do not interfere with him in the choice of a game. If he does not know what to do, you may make different suggestions, but do not compel his choice. Freedom in play is a compensation for restrictions in many other things.

3. *In certain actions.* Day by day, the child has many acts to do in the course of which he is not likely to get into mischief, and acts such as these, involving little possibility of harm, become more and more numerous as he grow older. He must be held, so to speak, on a chain, enjoying liberty within the radius of the chain, but the chain is continually growing longer, and a time will come when the captive will be entirely unfettered, for then he will be master of himself, he will never seek to evade the law.

4. *At certain times.* When the child begins to feel a vague impulse to govern himself, let him follow this impulse without any restrictions, and after he has enjoyed his taste of liberty, let us thus address him: "My child, every time you want to use your liberty and can do so, without abusing it, do so." Or better still, set apart certain times of the day for him to use as he likes, for instance, after class, a part of the time he is at home; let him use this time "to plan something, to carry out any plan he has made," or let him use this time for rest or amusement, if he says he needs it. The one thing not to be on any account tolerated is not to know how to employ one's time, to let an hour go by with nothing to show for it, either in work or recreation. This failing is by no means uncommon, and is altogether deplorable.

5. *In matters of importance.* For instance, in the choice of an occupation or on the subject of marriage. We shall return to this question later.

It is not sufficient for the child to decide upon something by himself, he must be able to carry out his purpose in spite of difficulties. Life is a constant struggle against the forces of nature, the wickedness of mankind, and our own evil inclinations, which are likely to turn us aside from the path of duty or of self-interest. To maintain the struggle worthily we must put forth effort which alone will lead to success in life and in virtue. For the sake of his future, then, we must do everything we can to cultivate the child's power of making *efforts*. How?

Care must be taken not to demand too hard an effort in the beginning, for this is likely to discourage the child who feels he has an impossible task; he will retain therefrom an instinctive aversion to any new effort.

Do you want a child to make a great effort? "Tell a little girl to carry a necklace of pearls," said a certain educationist. There is a deep meaning in this. We all of us spend our energies on the things that give us pleasure. Love gives birth to desire, and desire prompts to action. This does not suggest that we must never expect disagreeable things to be done (the end of education is precisely to enable us to have the will and the power to do disagreeable things at need); but let us train our children to find pleasure in each expenditure of energy.

This is why it is important to seize the right occasion. Sometimes a child is not disposed to do its work or to make an effort that it will be nevertheless capable of making an hour after. It is true that it is to some extent in our power to cause favourable dispositions to arise, by sympathy and especially by an atmosphere of brightness and happiness. Mrs. Edgeworth illustrates this in the following delightful anecdote:—"A father once said to his little son, aged three, 'Jump, William.' The child looked at him in silence and did not move; he either did not understand or he did not want to jump. His father took no notice, but began to play and jump with the other children. Little William watched them and suddenly called out, 'Papa is jumping.' His brother took him by the hand and made him jump two or three times. William then found great pleasure in jumping by himself. If his father had been impatient and angry with him, he would probably only have made him obstinate."

We have now to mention one last treatment, more bracing than any previously mentioned. Let us say to the child: "In a minute, you will have something, a piece of work to do. Make up your mind to do it well." Then the child will pull himself together for the effort demanded, his self-esteem is appealed to, and he will rise to the occasion.

To sum up, a few of the best means of stimulating effort are to require to be done things that are *easy and pleasing*, to choose *a favourable opportunity*, to keep up a *cheerful manner*, and to give *notice beforehand* of what is expected. What, however, is most important is not the intensity of the effort but the disposition to continue the same efforts—in other words, perseverance. How can perseverance be strengthened? It grows by exercise, for

instance after some act which has demanded effort, several other acts of the same nature are apt to be performed without any difficulty, if no obstacle is placed in their way. One of the most dangerous obstacles is our own want of sympathy or habit of making fun of serious things. Let us learn how to praise the slightest effort, for instance, even baby's, when he manages to get himself up on his chair.

Of course, beware of exaggerated praise. Parents are sometimes apt to admire the least movement of their child's little finger. Excessive praise is weakening. Success is the true and sole reward of effort. If we help the struggler to succeed, praise will be of little account to him. If he can once taste the joy of personal success, he will be ready for new efforts to give himself again such a delightful satisfaction. In a word, we should always *encourage* the child in well-doing, until the pleasure of *success* is experienced. As soon as this happiness is felt, there is no need to have recourse to anything but the pleasure which success brings.

And if the child does not succeed? The repetition of effort is in itself a joy. It will not be long before the child realises this truth, and this, in spite of the fact that his effort may not have succeeded. Of course, you will always recognise his good intention. When the youth fully understands that activity is its own reward, he will be in a position to acquire the greatest amount of energy and perseverance of which his nature is capable.

It is understood then that in the training we give, the child must partly form himself. We make him feel the importance of the will, and the beauty of energy; that fortune does not wait upon our deserts, but that we can be masters of our own actions, and consequently, partly control our destiny; that it is a finer thing to carve out one's destiny than to be the puppet of circumstances. And after thoughts such as these, he will appreciate the saying, " I am not a weather-cock but a man "; his heart will respond and pleasures themselves seem trifling compared with the dignity of control of his own actions.

It is particularly necessary to strengthen the child's will in the struggle against fear, pain, anger and inclinations to evil. We shall return to this subject later.

Suggestions for Study and Practice.

Some Practical Hints on School Hygiene. " The area of glass in windows should be from one-fifth to one-fourth of the floor area...No dry sweeping or dusting should be allowed. Floors and furniture should be cleaned with damp sweepers and oily cloths. Scrubbing and airing are better than any form of fumigation... Every school should have a sanitary drinking fountain. A common drinking cup is always dangerous and should never be tolerated. Where bubble fountains are not available, the children should be taught to fold cups out of paper...Individual towels should always be used. Paper towels are the cheapest and most practicable. The common towel is as dangerous to health as the common drinking cup."—*C. E. A. Winslow* (N.Y. State Department of Health), " The Ventilation and Sanitation of School Houses," *School and Society* (U.S.A.), February 6th, 1915.

School Surveys. " The school survey is the product of the public resolve to know and it can only succeed in the light and in the open. Its object is to make the entire school system pass in review before the public eye. It makes the school and the public pay attention to each other. It presents the past, the present, and the possible. It is a community stock-taking, inventory, and appraisal of its educational assets and opportunities. It aims to place before the citizens a picture of their schools; a picture so accurate that it cannot mislead; so simple that it cannot be misunderstood; and so significant that it cannot be disregarded...

" [The word ' survey ' has] always meant a looking-over, and it is to be hoped that in its new educational application it will continue to mean the kind of a looking-over of everything that does not overlook anything. Its future is secure if it

can stand for an impartial study of the schools of a community, competently conducted for the enlightenment of the public and the welfare of the children."—*Leonard P. Ayres* (Russell Sage Foundation), "School Surveys," *School and Society* (U.S.A.), April 24th, 1915.

The Basis of Sex Teaching. "If the facts of human parenthood are to establish themselves firmly in the young mind, and if, moreover, they are to establish themselves in the right attitude and draw unto themselves the right and not undue proportion of consideration, they must be shown in relation to the whole of organic life; the laws of reproduction govern the whole of the kingdom of living things. Man is not alone on the mountain : he is, though, at the summit. It will be evident, therefore, that, in the school, by a careful arrangement of Nature study, helped by keeping school pets, home pets, studying the habits and life of plants and animals, much may be done to make clear the fact that certain laws and processes obtain in essentials, throughout living creatures, so that when details of the human processes are later referred to, in intimate confidence between parent and child, the child may, as it were, say to itself, 'I seem to have known that all along.'

"Sex instruction, however, cannot faithfully be regarded as complete if it stops short at this point, for we are only at the beginning. The very object in giving these facts of information on human parenthood is that the child's mind may be prepared to accept further information as time goes on, and may be ready to appreciate the meaning of coming changes : the changes of body and mind which accompany the dawn of adolescence...Side by side with the incoming knowledge of the physical facts concerning birth and parenthood, a grand ethical concept must make its place. This important phase of training is even more important than training in knowledge only, but its full magnitude of possibility and its potential influence for promoting integrity can only be adequately realised and obtained when we have a knowledge of physical facts to go upon. The best preparation for life's responsibilities combines a knowledge of the facts of sex, and the important part it plays, with a deep appreciation of its power of working for the good of mankind."—*Norah H. March,* B.Sc., M.R.San.I., in her book *Towards Racial Health.*

Needlework and Myopia. "The lighting of the schools in the country, taken as a whole, is decidedly bad; in a great number of schools the illumination is so poor that it has been impossible to test the vision of the children within the school. ...Needlework entails close application, and, consequently, strain upon the eyes. Working on white calico with a fine needle and white cotton demands clear vision. If the visual acuity is diminished, or if the light is poor, the child brings the work nearer to the eyes, and also tends to stoop over the work. These are conditions which favour the onset, or an increase in the degree of myopia...*Prizes for needlework* [in which fine, neat stitches are merits] *should be entirely abolished*...No child in school should be required to make more than twelve to fourteen stitches to an inch...Children of seven or eight years are too young to undertake such fine work [hemming as usually taught in Standard I.], and it would be more satisfactory if this work was postponed, and sewing was not taught until children reached Standard II. Knitting, when done with coarse wool, is much less liable to cause eye strain and could, therefore, replace sewing in Standard I...Another reform in connection with the teaching of needlework, required even more urgently than the revision of the syllabus, is the alteration of the hour at which the sewing classes are held [generally three to four p.m.]...At this hour the illumination of the class-rooms, which at best is poor, is decidedly bad during the autumn and spring terms."—*J. E. Spence,* M.B., Ch.B., D.Ph., "Squint and Defective Vision in School Children," *School Hygiene,* May, 1915.

Pestalozzi on Education according to Nature. "Any method of opening up man's powers which claims to be natural

must be open and easy, and education which aims at leading men to true and restful wisdom must be simple and of general application.

"The natural way of cultivating power is to put it to use and give it exercise.

"That power comes from putting knowledge, gifts, and capacities, to use is Nature's secret for the education of man.

"Therefore the man of simple character and unstained life, who quietly, diligently, and with all docility, makes good use of his knowledge and of his finer powers, is educated according to Nature; whilst the man who puts this natural ordinance to confusion in his own heart, by weakening the simplicity and adaptability of his requirements, grows unfit to enjoy the blessedness of truth.

"Parents should not hurry their children into working at things remote from their individual interests. Let them first attain the strength that comes from dealing efficiently with matters near at hand. Be fearful of sternness and strain. By anticipating the ordinary course they diminish the powers of their children, and disturb profoundly the equilibrium of their nature. This is what happens when teachers hurry children into lessons that are chiefly concerned with words, before they have passed through the discipline of actual encounter with real things. Yet it is out of such experience that wisdom and truth develop. The teacher's course lays the foundation of intellectual growth and power in empty words instead of in the solid truths that come from contact with realities.

"The artificial methods of the school which prefers the order of words to the free though slow sequence of Nature may make men superficially brilliant, hiding in this way their want of nature power and satisfying times like ours."—From *Professor J. A. Green's* book on *Pestalozzi's Educational Writings.*

Pupil Self-Government. "In order that pupils may have actual experience in governing themselves they should be given some responsibility and some opportunity for self-government by allowing them to manage or take an active part in managing the discipline of the school, the recitation, their own clubs, games, playgrounds, fire drills, opening exercises, entertainments, excursions, class and school libraries, athletic contests or class savings bank.

"Pupils should be made to feel their responsibility by being made responsible for something in the preservation of school property, in the tidiness of school premises and school rooms, and thereby learn that mutual assistance and co-operative service are the fundamental principles of all healthy self-government.

"Pupils should be led to see that without law, liberty itself is impossible; that infractions of the law are injurious to the people individually and collectively, and that it is the duty of each citizen, young or old, to aid in the enforcement of the law. 'Good laws, good administration, and the perpetuity of the government itself depend upon the manner in which the people discharge their public duties.'"—From the annual address of *Superintendent Maxwell*, of New York City, quoted in *The American Teacher*, October, 1914.

The Teacher must enlarge his personality. "The first duty of the teacher is to enlarge his own limited personality so as to take in and appreciate the rich variety of character with which the boys and girls surround him. It is his one chance to grow into the larger and richer life which his duties demand. If he can wake up to the situation and crawl out of his narrower self into a broader sympathy, he will soon discover, in any school, children who have higher forms of ability. This is his best chance to build out and fortify the weaker, neglected spots in his own character. The teacher is, of necessity, limited in his knowledge, but he should be sympathetically open to all phases and peculiarities of human nature. He is under obligation to encourage every child to a free and full development of the best points in his own character."—*Professor Charles A. McMurray*, in his book, *Conflicting Principles in Teaching.*

Notices and News.

A Prize Essay on Moral Education.—A prize of £20 is offered by the Moral Education League for the best essay sent in on "The Reform of Moral and Civic Education." All teachers in elementary schools in the United Kingdom may compete. Particulars can be obtained from the Secretary, The Moral Education League, 6, York Buildings, Adelphi, London, W.C.

Our Journal in America.—A quotation from a recent number of our journal is made in *The Bulletin of the American Institute of Child-Life.* In making the quotation, it says: "An excellent series of articles by Professor Bidart has been running through successive numbers of *Child-Study* (London)." There is also, in the same number, a quotation from Sir James Crichton-Browne's recent article.

Reviews.

Pestalozzi's Educational Writings. Edited by Professor J. A. Green, M.A., and Frances A. Collie, M.A. Pp. xii., 328. Edward Arnold. Price 4s. 6d. net.

This is another of the excellent "Educational Classics" series of translations. Professor Green says: "I have tried to bring together those parts of his writings which show the essentials of Pestalozzian doctrine, and which exhibit the broad movements of his mind, from the vague but germinal *Evening Hours of a Hermit* to the preciser discussions of great educational problems in the *Swan Song.*" The translations are from:—*Evening Hours of a Hermit; Leonard and Gertrude; Enquiries Concerning the Course of Nature in the Development of Man; How Gertrude Teaches Her Children; Views and Experiences; Address to My House*, 1818; *Letters to Greaves;* and *The Swan Song.* Like Professor Archer (with Rousseau's writings) Professor Green gives, as far as possible, a closely literal translation.

Every student of Pestalozzi who is unable to read German owes a deep debt of gratitude to Professor Green. This book and his *Life and Work of Pestalozzi* (Clive and Co.) give by far the most complete and competent account of the writings and work of Pestalozzi that has ever appeared in English, or is likely to appear for a long time.

All teachers would do well to revise their knowledge of Pestalozzi, at least every three years say, for he is, as Professor Green says, "the starting-point of modern educational theory and practice [and]...From whatever side we approach him, with whatever problems we confront him, Pestalozzi reveals a pedagogical insight and breadth of view which belongs to no school, but will be fruitful for all time."

Towards Racial Health. By Norah March, B.Sc., M.R.San.I. Pp. x., 326. Routledge. Price 3s. 6d. net.

This is a timely book, for never in the history of our country, or that of our Allies, has the maintenance of population been more important. All who are busy training the rising generation and alive to the claims of nationality will welcome it as a helpful contribution to the question of race culture. It is written for adults, and the modest aim of the authoress is to gather into one volume information usually scattered over many, and to offer a few practical suggestions on the problem of sex education. How well she has succeeded those who read will soon find out.

Phases of growth and development, the anatomy and physiology of racial organs, the influence of internal secretions, the rhythm of accumulation and release of energy, and the rôles of heredity, nurture, and function, in the light shed by Mendel and Darwin, are all dealt with in order. The instruction on racial organs and functions is given with exactly as much reserve as that of a text-book for medical students.

Miss March then discusses the thorny questions of how, when, and by whom, such information is to be imparted to boys and girls. Full use is to be made of nature study, and here the advantage of a scientific training in biology becomes most manifest, for even the country squire, with his practical classification of animals into game, stock or vermin, is often at a loss to answer the "awkward" questions of a growing family. The chapter on nature study—fascinating in itself—is completed by an appendix full of practical hints as to how to keep plants and animals under observation.

Easy lessons in the sex functions of plants can hardly come too early in any scheme of formal instruction; but definite information as to human racial matters is reserved for the unemotional period of childhood, and linked up with general training in the hygiene of the body so as not to be unduly obtrusive. Here the book is particularly helpful; illustrative talks are given and advice on matters of hygiene for both sexes, which show that, *pace* Mr. Shaw, Miss March can both teach *and* do, but withal is not one of those "practical" people who "practise the errors of their predecessors."

There are many claimants for the honour and advantage of instructing the young, and the claims of parents, teachers and doctors are all fairly considered in these pages, but those of priests—aye, and the priestesses—of fads, are ignored.

There is a cursory reference to the doctrines of Freud—presumably for the sake of completeness—for its bearing on the theme of the book is not very clear, and it might well be offset by the dictum of Féré: "there is no pathology of continence."

Questions of racial poisons and social diseases are discussed, and as regards the latter the value of the "moral appeal" is rightly emphasised at the expense of attempts to scare the young people from the paths of vice, for all sinners hope to be lucky.

The profound differences between boys and

girls, and between men and women, are never minimised, and the book is so absolutely free from sex bias that many of us might have been glad if the authoress had dealt at greater length with the very thorny question of how girls *are* to reconcile the antagonistic claims of self and race.

" Education for Parenthood " is perhaps the culminating subject of the book; the note of nationality rings true throughout it, and it may be heartily commended to all who hold with Miss March that every child is a potential parent, and that " *the child* is the central fact of a nation's progress."

L'Intermédiaire des Educateurs. October to December, 1914. Price 80 cents. Geneva.

A review of the second year's work of the Institut J. J. Rousseau, of Geneva, occupies the greater part of this number. M. Ed. Claparède proposes a questionnaire on children's games, to which he seeks replies, the questions proposed being:— 1. What is your favourite winter game? 2. Why? 3. What is your favourite summer game? 4. Why? There are also some interesting replies to a question that had been set as to the age at which children begin to ask questions philosophical in character, what the questions are, whether they were spontaneous, and whether they show a continuous development or well-marked phases.

Archives de Psychologie. December, 1914. Price 3 fr. 50. Williams and Norgate.

Mdlle. Descœudres, under the title " Colour, Form or Number," gives an account of some experiments she has conducted to determine how these notions evolve at different ages, when each appears, and how one can estimate their respective values. Among other possibilities of these tests, which cannot easily be summarised, the author believes one may be able to establish a scale of choice for different ages, and the part played by heredity and environment respectively on different subjects. M. Victor Cornetz, in another article, describes some interesting experiments undertaken to show what other resources, beyond sight, smell and touch, ants may have to guide them in their work. In a third article the scales of merit, well known to all students of Thorndyke (see his " Educational Psychology, Principles of Teaching," and "Education"), come up for critical examination by MM. Pierre Bovet and S. Chryssochoos. In agreement with the general principles upon which Thorndyke and his pupil Hillegas proceeded, the authors criticise some of the methods employed, and enforce their point of view by reference to the scale for drawings. They submit an ingenious method invented by M. Chryssochoos to make such a scale of more general validity, in which they proceed by determination of thresholds rather than of sensible differences, take a different zero and a different unit of value, and achieve a scale with fewer steps, which they believe advisable, since, in the work furnished by pupils of the same class, there are not more than three or four degrees of value upon which competent judges would be able to agree.

A short article by Mdlle. C. Huegenin, under the head of " Revivisence Paradoxale," deals with Dr. Ballard's thesis on " Obliviscence and Reminiscence." It is to the latter term she objects, and at the suggestion of Dr. Claparède has adopted her title instead. She carried out experiments similar to his on seventeen pupils at intervals of eight and fifteen days and one-and-a-half and two months. It was a pity she did not test the two-days' interval which he found most effective; her results in general agree with his; where they differ her numbers are too small to make effective criticism possible. She also accepts Dr. Ballard's interpretation of the facts, and calls attention to the results obtained by Dr. Cioni, an Italian scientist, who decided that forgetfulness increased with the lapse of time when memorisation had been carried out with attention, but decreased with time, *i.e.*, reminiscence increased, when there had been some form of distraction present at the time of learning.

Children from Two to Five; Their Care and Management. By EDITH L. MAYNARD, formerly Chief Woman Inspector, Public Health Department, Leeds. Pp. 52. The Scientific Press. Price 4d. net.

This little book is chiefly written for working-class mothers and " for all those who really do feel anxiety in the face of the many difficulties that they meet with in training a little child so that it may grow up healthy in mind and body."

The writer succeeds admirably in what she set out to do, *viz.*, to explain in simple language the first principles of healthy growth, and every mother and nurse will find some helpful suggestions. The book shows plenty of knowledge of human nature, and holds up a warning hand against those fetishes to which so many children are victims. " A very good rule to go by is not to change any arrangement in a child's life unless a good reason is given for doing so. It is not a good reason that ' So-and-So's Mary always did it and look how strong she is.' "

The paragraph on " Exercise " (page 24) is also good. Chapters dealing with " Food," " Sleep, Rest and Exercise," " Clothing and Baths," "Care of the Teeth, Ears, Throat, Nose and Eyes," "Infectious Diseases," give sufficient information to indicate the need of skilled advice in case of illness or abnormality. The last chapter, on " Training the Character," is excellent, and the last page, under " The Mother's Character," goes to the root of national health of mind and body.

PUBLICATIONS RECEIVED.—*Journal of Education; Educational Times; Parents' Review; School Hygiene; School and Society* (U.S.A.); *Educational Review* (U.S.A.); *Journal of Educational Psychology* (U.S.A.); *Child-Life; Secondary Education; A Child's Garden of Verses,* by R. L. Stevenson, Pp. xv., 80, Longmans, Price 1s. net.

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A Study of a Child's Dreams: with Special Reference to Freud's Theory of Dreams.

By William Boyd, M.A., B.Sc., D.Phil.

The method of psycho-analysis, developed by Professor Sigismund Freud and his disciples, while primarily concerned with the pathology of adult neuroses, raises some questions of the profoundest consequence for the child student and the educator. It is substantially maintained by Freud that the mental processes, and particularly the wishes of early childhood, form the permanent bases for all later developments of mind and character. The analysis of adult mentality, both normal and abnormal, shows, according to him, that behind the conscious acts of manhood and womanhood are all manner of sub-conscious impulses that had their beginnings before the end of the fifth year of life. (*Cf.* E. Jones, *Psycho-analysis,* pp. 19-21.)

Without entering into a discussion of this doctrine and all the extraordinary deductions which Freud makes from it, one may note that it is based almost entirely on the analysis of the adult mind, and that apart from the minute examination of one or two very abnormal cases and some casual examples of children's dreams in Freud's great work on *The Interpretation of Dreams,* no attempt has been made to throw light on the questions it raises by the direct observation of children.

It is obvious, of course, that it is difficult to make satisfactory observations of children that would either confirm or refute the theory. In the case of adults, as Freud has shown most admirably, it is possible to devise methods by which to bring under scrutiny some of the more important phases of the sub-conscious life, and to determine the conditions of their genesis. But with children we have to limit ourselves for the most part to noting passively characteristic methods of behaviour and inferring from these as best we can the underlying motives of action. Even within these limits, however, it is highly desirable that a careful study of children should be made from the point of view suggested by Freud. Whatever bearing the results may have on his theories, they cannot fail to add to our knowledge of childhood.

With a view to forming a judgment on this matter, I have made exact note of various phenomena in the development of my little girl over some years. In the present article I propose to give an account of the child's dreams with reference to Freud's view of dreams. This line of investigation has the advantage of raising some of the fundamental problems of sub-conscious life in childhood in a definite form.

One of the chief methods employed by Freud in determining the sub-conscious mental content is the analysis of dreams. By a long and laborious inquiry, rising out of his professional work, he has shown, as he believes, that the central feature of every dream is a wish-fulfilment. In the adult the wish, which is the motive of the dream, is generally one which has been suppressed in the course of the ordinary education of life, and which even in the dream presents itself in such a distorted form that a special method of interpretation is required before its significance can be discovered.

In the child the dream is more simple. Partly because the repressive forces which have driven the anti-social impulses into the obscurity of sub-consciousness in the adult have not yet completed their work

in early childhood, partly because sexual desire (using the term in a broad sense), which is the most important though not the only factor in the unrecognised motives of the adult, has scarcely yet awakened, it is unfulfilled rather than suppressed wishes which are responsible for children's dreams. "The most simple dreams of all, I suppose," says Freud (*Interpretation of Dreams*, Eng.Tr., p. 107), "are to be expected in the case of children, whose psychic activities are certainly less complicated than those of adults...The dreams of little children are simple fulfilments of wishes." He gives some examples from his own children's dreams. His little boy, aged five and a quarter, for example, dreamed they were up at a hut on the top of a mountain which they saw through a telescope from a holiday house. He had been much disappointed on the previous day to discover that he could not get up to it, as he had hoped and expected.

In order to test this theory of children's dreams, and perhaps get some facts bearing on the general nature of dreams as a revelation of sub-conscious trends of mind, I made a collection of all the dreams told by my little girl from the sixty-ninth month till the seventy-fifth. I had previously noted down any dreams that she had happened to mention when I was present, but had not taken any measures to secure a record of all her dreams. Now, however, I made a practice of being with her as much as possible in the half-hour after she awakened, and enlisted the services of her mother in noting dreams told at other times.

To make sure that she would speak of her dreams, I sometimes told her mother in her hearing any dreams I had had myself, and thus got her interested in her own dreams. Generally I avoided asking her whether she had been dreaming, so as not to lead her to invent dreams, and on the few occasions when I did ask her I took care to suggest that she might not be able to remember any dreams. Most of the dreams recorded were noted down by myself in shorthand at the time of telling or reported at once by her mother, whose accurate verbal memory ensured a faithful reproduction of the *ipsissima verba*. Following are this systematic collection, as well as the earlier more casual collection, with a few explanatory comments.

1. *Forty-three months.* "Do you know, I was dreaming last night? I dreamed that all our pictures were broken, and our walls were broken, and our house was broken, and we were all dead, and we could not speak, and we could not eat, and we could not walk, and we could not go to sleep."

She was laughing all the time she was saying this.

2. *Forty-five months.* "Do you know what I dreamed last night? I dreamed I was holding a trap and a lot of little mice got caught in it till they were all caught. But it's not really true. Dreams are not really true."

She was rather afraid of mice, but did not wish a trap to be set to catch them. Three months before she was nearly in tears when a trap was set for mice.

3. *Forty-nine months.* "I dreamed that Aunt H. took me a walk past a tiger that was not chained, and it jumped up and nearly killed us." (A pause: I asked her what happened then). "I just dreamed she did that—boom !—and it was killed."

This was told immediately on getting up, and was repeated twice in the course of the day.

4. *Forty-nine months.* "I dreamed that Mr. Clark's horse was jumping over the paling and nearly came into our bedroom and knocked down the door."

5. *Fifty-five months.* "Do you know what I dreamed last night? I was crying because yon doll in the pink dress at grandma's was not a nice one, and I dreamed that grandma found another doll. Wasn't that a nice dream?"

6. *Sixty-one months.* To her father: "Do you know what I dreamed about you last night? You went out in a boat, and the boat capsized, and you swam back to us all safe."

This dream took place during a holiday at the seaside.

7. *Sixty-eight months.* "I had a dread-

ful dream last night. I dreamed that shells were falling outside in the garden, and we were rushing about getting our things. That is all I remember."

This was six months after the beginning of the War.

8. *Sixty-nine months.* To her mother: "I dreamed that you were in the nursing home, and that there were a lot of nurses in your room all cuddled down on the floor—on the carpet."

Her mother had been in a nursing home four months before.

9. *Sixty-nine months.* "Do you know what I was dreaming? I dreamed that Mr. Clarke's big white horse was coming up the stairs... But, of course, the horse couldn't come up the stairs."

See dream 4. There was also a reference made to the horse coming up the stairs in the conversation following that dream.

10. *Sixty-nine months.* "Do you know what I was dreaming? My pretty hat got put into the fire, my pretty picture books got put into the fire, and all my pretty playthings got put into the fire, by Barbara."

This was told immediately she awoke. Barbara was the maid.

11. *Seventy months.* "I had a dream last night, I remember now. I dreamed that I had a boat with a long, long string to it, and the boat was sailing on the Cart, and I was holding the string." Asked whether she was holding the string from the top of the bridge, she went on: "No, it was through the railings; and suddenly I saw a lovely water fairy sitting on a rock, and she turned my boat into a real boat, and she made a lovely wee stone pier for people to get on and off the boat. And it was a real pier with a stone pillar. The fairy turned the long string into a rope to fasten the boat to the pier. And we sailed up and down the river."

On this occasion I had told her one of my dreams, and asked her if she had had any dreams. She said no, but ten minutes after, she suddenly told the dream given above. There were some halts in the narration, but, except perhaps towards the end, there was no suggestion of the story being made up.

12. *Seventy-one months.* (1) To her father (immediately on waking up): "I dreamed that mother had gone away to get something, and I was running to meet her. You said, 'Oh, there's mother!' and I opened my eyes like that (blinking)...Then I opened my eyes wide when I awoke." (2) As she seemed to be somewhat upset, I asked what she had been frightened for. "Germans dropping bombs," she said. "Before I wakened up, I dreamed I saw an aeroplane at the seaside. It was not a German one. It was a British one." (3) (A minute or two later): "I dreamed that I was playing with my ball. I was running along to mother and I dropped it, and then I caught it, and I dropped it into a river and there was holes (?) in it, and I never got it any more."

With regard to the second of these dreams, it may be noted that she had seen a hydroplane flying at the seaside ten months before; but it is possible that she had seen an aeroplane a week or two before the date of the dream.

13. *Seventy-one months.* "I dreamed last night that Maidie came into our garden without me asking her, and mother just put her out. But she just came in again and hit me and Lily."

Maidie is an older girl of whom she is afraid; Lily, her special friend.

14. *Seventy-one months.* She dreamed she had gone to Falkirk to see her Aunt's new baby. It had on a white dress with a long frill. It was so long (here she held her hands apart to show a length of about six inches).

15. *Seventy-two months.* One morning she awoke with dry panting sobs. When asked what was wrong, she said: "I dreamed that I had got another father; that was why I cried." Half an hour later she expanded the dream somewhat: "I dreamed that my father had gone away, and that I had got another father." When asked what "gone away" meant, she said she did not know; "that was all the dream said."

"Gone away" obviously means "dead."

Six weeks later, when the subject of dreams was mentioned, she said: "When I was a wee girl of five, I once dreamed that my father was a soldier and had gone away to the war, and I was crying in my sleep." No reference had been made to her dream in the interval.

16. *Seventy-two months.* To her father: "I dreamed that you were taking me a walk, and there was just Lily and I." She could remember no more.

17. *Seventy-two months.* "I dreamed that I went to the trip and Lily was there." She was anxious to go to a picnic on the previous Saturday, but had not been permitted.

18. *Seventy-two months.* To her father: "I dreamed that you had put up the hook of the swing...I dreamed I told Lily."

One of the hooks of her swing had got broken and was awaiting repair.

19. *Seventy-three months.* "Do you know what I dreamed I caught? I dreamed I caught two wee blue-tits, and I came and gave them to you...lovely wee things."

Two or three months before she had been greatly interested in the blue-tits who had come to a bone hung up in the garden, but nothing had been said about them for some weeks.

20. *Seventy-three months.* When she awoke one morning, her mother asked her what she had been dreaming about; she had been looking sad and uttering little sighs in her sleep. At first she said that she had not been dreaming; then that she had had a dream, but had forgotten what it was. Ten minutes later she suddenly shouted out in a tone of satisfaction: "I was dreaming something. I remember now. It was about me having a blister balloon and I could not get it up. And I blew it into a great big balloon and then it burst."

One of her playthings at this time was blister balloons, of which she had contrived to burst several in the two or three weeks preceding the dream.

21. *Seventy-three months.* To her mother: "I woke up this morning, mother, crying low, because I had a dream. I dreamed that father was cutting off the tail of a wee bird and I was crying because I saw him doing it. It was a long tail, but that is all I remember. I thought it was true; that was why I was crying. When you dream you think dreams are true." When she came down stairs, I asked her whether she had had any dreams (wanting to hear her dream for myself). She then reported as follows: "I dreamed that you had cut off the tail of a wee bird. Its tail was too long. And I was crying. You think dreams are true."

Two days before I called her attention to a sparrow on the road that had no tail.

22. *Seventy-three months.* "I dreamed that Alice came back and I was so glad that I went up to her and gave her a hug."

This was told immediately on awaking. Alice was a cat which had got lost two months before.

23. *Seventy-four months.* She awoke one morning with little cries. Mother asked her why. She said that she had been dreaming, but had forgotten her dream. Mother asked her if it was about someone dying. She said "No." Then, was it about someone teasing her? "Not teasing me," she said; "tormenting me and hitting me and pinching me." Who it was she had no idea, but she was certain it took place in the village.

24. *Seventy-four months.* One night after she had been in bed two hours, she gave a little chuckle in her sleep, and said in a pleased voice, "Isabel." I wondered which of the two or three Isabels of her acquaintance it could be. Next morning I asked her what she had been dreaming about when she laughed, but said she remembered nothing. I then said: "I wonder which Isabel it was?" She said at once, "Isabel in the story." I had been telling her a story just before bed-time in which Isabel figured. Was the dream a story dream?

25. *Seventy-four months.* (1) One morning when she awoke she said immediately to her mother, "Oh, I had a dream, and it was a lovely one, and I was speaking to you in it. But I don't remember it all." When asked what it was, she

said, "I dreamed I had a lot of girls for tea. It was just a party, not a birthday party, an ordinary party; and" (a short pause) "they had tea, and they had to go home at eight o'clock. Of course, I got staying up till then. You were up in the drawing-room. I ran up and told you, because Bunty had come along to see where the M. girls were. And when eight o'clock struck all had to go, and there was a row of bicycles outside." (2) A minute or two after she said, "I had two dreams last night. I dreamed what day Lily was coming home. I dreamed the right day Lily is coming home."

She had a party of the kind that formed the subject of the first dream three weeks before. The subject of the second was the home-coming of her playmate from a holiday, about which she was greatly excited. She knew which day had been arranged for the home-coming, but was doubtful whether it would actually take place as arranged.

26. *Seventy-four months.* "I dreamed that Mrs. M. had come again to see Miss W. with the baby, and that we were carrying it out in a chair." A short halt. "I dreamed the piece that's filled with rhubarb in Miss W.'s garden was the path, and I dreamed that she had laid the baby in the basket chair that was along there, and I was speaking to the wee baby; and it was gurgling and laughing. And it said to me (I don't think you will believe it because it could not say it yet) 'Dar du tuming in here?' 'Are you coming in here?' in a baby language. And that was all it could say, and I was delighted. So was its mother delighted. And it isn't old enough to say that yet!"

Three weeks before she was very keenly interested in the baby of a visitor who was staying with a friend, and danced constant attendance on it.

27. *Seventy-five months.* To her mother immediately on waking: "I had a beautiful dream. I only finished it just now. You were taking me to a picnic at the Black Rock. I was running down a very steep brae, and at the foot I tumbled into the water. And, mother, there was a wee girl with me, and the water was very deep; up to there" (she held her hand about two feet up). "I just stood up. I don't know who she was. I lifted her up to stand up. I held her standing in the water. And you took her hands and helped her to get up, and I just jumped up myself."

Five minutes later, at my request, she told the dream over again after protesting that she had forgotten it, and many of the details got changed in the re-telling. Lily was at the picnic, and Elsie and Alick, and wee John ("he's a dear wee pet"), and Isabel and Rita. The names came out discontinuously, as if it involved an effort to recall them or to bring them into the story. And it wasn't a wee girl that fell into the water; it was wee John, and the water was up to his neck. And she herself did not fall into the water. She jumped in "with a splash" to save the little boy, lifted him up, and handed him to mother on the bank.

It is possible that the romance of the second version may have had its origin in a story I told her three weeks ago about a big girl who jumped into the sea to rescue a little boy who had fallen in.

28. *Seventy-five months.* To her mother: "I remember a dream I had last night. I dreamed that Maidie and Laurie came to apologise to you for running after me and chasing me; and I dreamed that you said it was all right, and told them that they were to go and apologise to Mrs. C. for chasing Isabel and Rita and Lily. And that would be all right if they did that, because I could get to play with them then."

This dream was recalled at midday. Maidie is the tormenter of dream 13; Laurie is her brother.

29. *Seventy-five months.* "I had a lovely dream last night. I dreamed about the war. I dreamed that the Germans were all pushed back, away to their own country."

This dream was told a quarter of an hour after awakening, shortly after I had told her mother that, according to the newspaper reports of that morning, the

Germans had "pushed back" the Russians still further.

30. *Seventy-five months.* "I dreamed about Laurie last night. I dreamed that he was friends with me and was not going to touch me any more." See dream 28.

It will be evident that if these dreams are taken at their face value, it is not possible to bring them all under Freud's formula as satisfactions of unfulfilled wishes. Quite a number of them undoubtedly admit of explanation as having their origin in a wish or desire. The implicit wish is more or less obvious, to one who knows the child, in 14 (seeing her aunt's baby), 16 (walk with father), 17 (going to a trip), 18 (getting swing sorted), 19 (catching blue-tits), 22 (return of cat), 25a (party), 25b (playmate coming home), 26 (baby speaking), 28 (girl apologising), 29 (Germans pushed back), 30 (boy becoming friendly). With these may perhaps be grouped 2 (mice in trap), 5 (doll at grandmother's), 11 (boat on river). The most doubtful is 2 : her fear of mice may have led her to wish them caught, but her explicit wish was certainly that they should not be caught. What exactly the wish was in 5, or whether there actually was a wish, I do not know. There may have been a wish embodied in 11, and probably there was; but it was never at any time explicitly expressed. The same thing might be said about 19.

While this set of dreams may be regarded as confirming Freud's view in a general way, there is one peculiarity about them which deserves notice. In the instances he gives, Freud traces back children's dreams to a disappointed expectation of the day preceding the night (or morning) of the dream. But with the exception of three or four cases where the desire that took dream form was more or less chronic, none of the wish dreams, so far as is known to me, was connected with a definite episode of the previous day. (The same thing applies to all the dreams). In some desire may have been active, though it found no overt expression in word or deed; but in others (for example, 19, 22) there does not seem to be any reason for thinking that there was any immediately preceding interest to account for their occurrence. On the whole, I am inclined to find the origin of most of the dreams not in a frustrated wish, but in a strong desire experienced some time in the course of the weeks preceding the dreams.

But there is another and slightly more numerous set of cases where the central situation is not, on the face of it, such as the child would wish, but rather the opposite. These fall into the following groups : (*a*) fearsome animal episodes : 3, 4, 9; (*b*) persons hurting the child : 13, 23 (*cf.* 28, 30 among the wish dreams); (*c*) loss of playthings : 10, 12c, 20; (*d*) war fears : 7, 12b; (*e*) fears about father : 6, 21; (*f*) miscellaneous : 6 (everything broken), 21 (bird's tail cut off). There may also be included here, but more doubtfully, 8 (nursing home episode), 12a (meeting mother), and 27 (falling into stream). A certain amount of mental distress accompanied 12 (a, b, and c), 15, 20, 21, 23.

If we were to take this second set as they stand, we would conclude that more than half of the child's dreams have nothing to do with wishes at all, and that in a considerable number of them the impulse revealed is fear and not desire. But before drawing that conclusion, it is necessary to ask whether the manifest content of these dreams really represents a primary tendency of mind, and does not conceal some inhibited or repressed wish. This is the view that Freud seems to take of similar cases. "Besides those dreams which continue the painful sensations of life during sleep," he supposes some critic to say, "there are also dreams of fear in which this most terrible of all disagreeable sensations tortures us until we awake, and it is with just these dreams of fear that children are so often persecuted, though it is in the case of children that you have found dreams of wishing undisguised" (*Interpretation of Dreams,* p. 114).

The contention with regard to adult dreams of this kind is that upon interpretation they turn out to be wish fulfilments; and though he does not discuss the rather different case of children's unpleasant

dreams, he would probably say the same about them. It is obvious that if impulses repressed before the age of five play a large part in determining the latent content of adult dreams, it is not unlikely that such dreams as those recorded here (all of them but the first five occurring between the ages of five and seven and a quarter) may show a transformation of mental content similar to that which is found in the case of adults.

Now, it cannot be denied that the dreams which we are considering have undergone some modification. That is indicated plainly enough by the dreams of which there is an earlier and a later version (see 15, 21, 27). The important question, however, is not whether there have been modifications, but whether the modifications have been such as to obscure the fundamental impulse which is the core of the dreams; and more particularly whether the fear dreams are expressions of an original tendency of mind or are derived in some way from wishes or desires.

To that question, it seems to me, the answer suggested by the evidence is that fear is as fundamental as desire in the sub-conscious promptings that issue in dreams. One or two of the fear dreams, it must be admitted, are rather fanciful, and do not seem sufficient to account for the distress of mind which accompanied them (for example, 12c, 20, 21). But most of them are simply the fears which occasionally beset the child in her waking life. There does not appear to be any more need to look for an ulterior explanation of them than for the dreams motivated by wishes. And even if some doubt attaches to certain of the fear dreams which occurred about the age of six, it is scarcely possible to extend this doubt to the five earliest dreams (from forty-three to fifty-five months), which *ex hypothesi* are least likely to conceal a repressed impulse. Three of these, it will be noted, are fear dreams, and the other two, though capable of being interpreted in terms of wish-fulfilment, have an element of fear or pain in them.

In this connection, it is interesting to note that the three dreams relating to the child's parents, which on the Freudian theory of the infantile sex attitude might have been expected to exhibit a difference between manifest and latent dream content, do not do so. The dream of the mother in the nursing home (8) might by a rather far-fetched interpretation be taken to be an expression of a desire for the removal of the parent of the same sex who stands between the child and the parent of the opposite sex. But the dreams about the possible drowning of the father (6) and his "going away" (15) which would have agreed beautifully with Freud's theory if the child had been a boy do not admit of any such interpretation. They are plainly the outcome of real fears and not of transmuted wishes.

Taking everything into account, we seem to be entitled to say that the fears which underlie some of the dreams are as directly expressed as the wishes which underlie others. If so, we must conclude that Freud's interpretation of children's dreams as normally based on wishes errs by taking the explanation of a particular set of dreams (contrary to the facts) as of quite general application. Only some dreams, it appears, express a wish; some others express a fear or a disagreeable anticipation. It may be that others (for example, 5, 8, 11, 25a, 26), though capable of being taken as wish or fear dreams, are forms of mental romancing in which the conative element is subordinate to the intellectual. (On this last point the facts at my disposal do not warrant any decisive verdict. On the whole, I incline to the view that an affective impulse is the central fact in all dreams).

If this view is sound, it raises serious doubts with regard to the basic assumptions of psycho-analysis. Freud, as I understand him, regards libido, the fundamental craving that appears most typically in sex, as the ultimate force in all mental process. The dreams I have recorded here suggest that this is an undue simplification of the facts of the case, and indicate the existence of other instinctive impulses, of which fear is one of the most notable.

that need to be reckoned as equally primitive in any adequate account of mental origins. However that be, the general character of the elemental constituents of mind can only be partially indicated by such analysis of adult experience as has been made by Freud. In the last resort, we must depend for an exact knowledge of them on the direct study of the child.

Tests of Development and of Aptitude.

By Professor E. Claparede.

Translated from *El Monitor de la Educación Común,* Buenos Aires, by Professor C. R. Chapple, M.A., University College of Wales, Aberystwyth.

The first writers who, after 1890, commenced to prepare mental tests, proposed, above all, to determine by their means the characteristic traits of the psychological physiognomy of a person, in other words, his individual type. Afterwards clinical and pedagogical considerations entered into the question; the enquiry became not merely what is the *type* of a mentality, but what is its *grade?* A quantitative problem has thus been superposed on the qualitative one, and has given rise to sufficient complication.

It is especially since Binet and Simon in 1905 proposed their method of standards for the diagnosis of the degree of mental backwardness of scholars that the consideration of grade has supplanted that of type, at least so far as concerns children. Because here *grade* signifies not merely the greater or less development of a faculty considered in itself, but also development in relation to time; that is to say, *backwardness* or *advance.* How far is this child backward in relation to its normal age? Does the age of its intelligence correspond to the age of its civil state? Here are questions upon which attention has been concentrated; they are those which naturally interest the practical man, the pedagogue, who wishes to know into what class a child should enter. And, for the rest, this is the determination which for some time back school records have claimed to make.

The tests of Binet and Simon have given rise in latter years to a considerable amount of work; the greater part of those who have used them find them useful and just, given modifications of detail. Nevertheless a criticism which is frequently made is that they contain tests directed to very different mental functions, so that if from a practical point of view they are incontestably useful, from a theoretical and psychological standpoint they are not satisfactory, because it is not exactly known what it is that they measure. A certain number of them are certainly tests of *general knowledge,* as the knowledge of the names of the months or the days of the week. Others deal rather with *school acquisitions,* as the copying of a phrase. Finally, others are directed to the *natural intelligence* of the child, its dexterity, its power of imagination, its capacity to get out of a difficulty (*e.g.,* definitions, placing three words in one phrase, etc.).

But precisely, how can one interpret from the psychological point of view these tests directed to the natural intelligence? If a child performs some of these tests badly is it necessary to deduce that it is *backward* for its age, or simply that it is *different* from the average of children of its own age? In other words, do these tests indicate development or individual aptitude?

This question of the *criterion* which distinguishes a test of aptitude from a test of development has, in my opinion, never been looked squarely in the face, although many writers have observed the difference in the two points of view. Meumann, for example, criticising the Binet and Simon tests, proposes a new series, which he divides into tests of development, of aptitude and of knowledge; but he does not justify his method of selection of these three classes, and particularly the two first, with which we are at present specially concerned. Thus Meumann appears to consider it evident that power of concentration of attention, of memorising of words, de-

scription of an image, etc., give occasion to tests manifesting aptitude, while extension of attention, language, extension of memory, orientation in time, etc., manifest, on the contrary, degrees of development. This choice seems extremely arbitrary.

Nevertheless, superficial observation shows us that certain capacities in children express above all individual traits and not degrees of development. No one, I suppose, would seek to determine whether a child of twelve years is backward or advanced in relation to its age by examining its capacity in drawing or singing. One knows, in fact, that in these branches individual differences are very great, whilst differences between one age and another are very indistinct.

But outside these two cases, these two talents, we remain undecided, and it is impossible for us to say up to what point a mental function considered in a given individual expresses an aptitude rather than a degree of development, or *vice versâ*.

Perhaps the question is profitless. Growth is a complex, unequal process. During development certain functions proceed by leaps and then suffer suspension; and the development of each one is bound more or less to the development of the others, and to the external circumstances which stimulate them. Thus it may be entirely vain to seek to make clear what, in the multiplicity of the elements which make up the psychic life of a child, belongs to its individual capacity and what belongs to its age level.

And yet it cannot be denied that age brings into the psychic life characteristic traits. If we consider ages sufficiently far apart this fact is clear. Let us take haphazard two children, one of five years, and another of twelve. If the latter shows more logic in ideas, greater power of abstraction, stronger memory for figures than its smaller companion, no one will suppose that this is due to the fact that he is of a "type" more intelligent or more abstract than the other; the difference observed will obviously be attributed to age.

But the difficulty increases if we consider ages closer together. If a boy of twelve years reads, calculates, or learns quicker than a child of eleven years, shall we say that it is because he is older, or because he is endowed with a greater aptitude for reading, calculating or memorising?

Let us suppose that we have to experiment on a large number of children of eleven and twelve years. Suppose that we have found, for example, that the children of eleven years read on the average one hundred words per minute, while the children of twelve years read an average of one hundred and ten words (from the same text) in the same time. But among the children of eleven years there are some who can read one hundred and ten words like their elders. Shall we say that they are a year in advance in respect of rapidity of reading?

In order to answer a question of this kind it would be necessary to know the variability of this phenomenon of reading. If of one thousand children of eleven years almost the whole, let us say nine hundred and fifty, read between ninety-seven and one hundred and three words per minute, and if of one thousand children of twelve years nine hundred and fifty read between one hundred and seven and one hundred and thirteen words, we should be able to say that rapidity of reading is a true characteristic of age, that the children of each age really constitute from this point of view a different species. And consequently children of eleven years who read one hundred and ten words belong very well for this character to "the species of twelve years."

But if, on the contrary, we find that the children differ very much amongst themselves within each age, that, for example, among the children of eleven years a fourth part attain between eighty and ninety-six words per minute, another quarter between ninety-six and one hundred, another between one hundred and one hundred and four, and the rest between one hundred and six and one hundred and twenty, and that in the same way the children of twelve

years are dispersed analogously getween ninety and one hundred and thirty words, these individual differences will absorb, so to speak, the differences of age, so that if a child of eleven years reads one hundred and ten words per minute we cannot say that he is "a year in advance," seeing that about twenty-five per cent. of his companions of eleven years do the same, and it would surely be without significance to consider as a characteristic of the age of twelve years a test passed by approximately a quarter of the children of eleven years, and one in which a quarter more or less of those of twelve years fail.

It is seen that the distinction of a test of aptitude from a test of development depends on the variability which is shown with respect to this test in individuals of the same age. *If this variability is sufficiently strong to eliminate the differences between one age and another, the test will be one of aptitude; if, on the contrary, the differences between one age and another dominate, it will be a test of development.* In other words, a test is one of aptitude when it investigates a mental character which differs more on the average from one individual to another (those individuals being of the same age) than on the average from one age-class to another.

This principle once admitted, it remains to find the method of application. It might be thought at first that a test is one of development when the difference between the two averages for two ages near to one another exceeds one of the quantities employed to express variability, whether it be the mean difference from the average, or the difference of mean squares, or, lastly, the probable difference. The last quantity is that whose significance is most clear; it measures the true average variation. The one half of the subjects under examination shows a greater difference from the average, and the other half a smaller difference.

But this difference would be a value too small. As we can convince ourselves by constructing curves of frequency, we see that if the maxima of two such curves (in the bell-shape of the curve of Gauss) are only distant by a space equal to, or only slightly greater than, the probable inter-

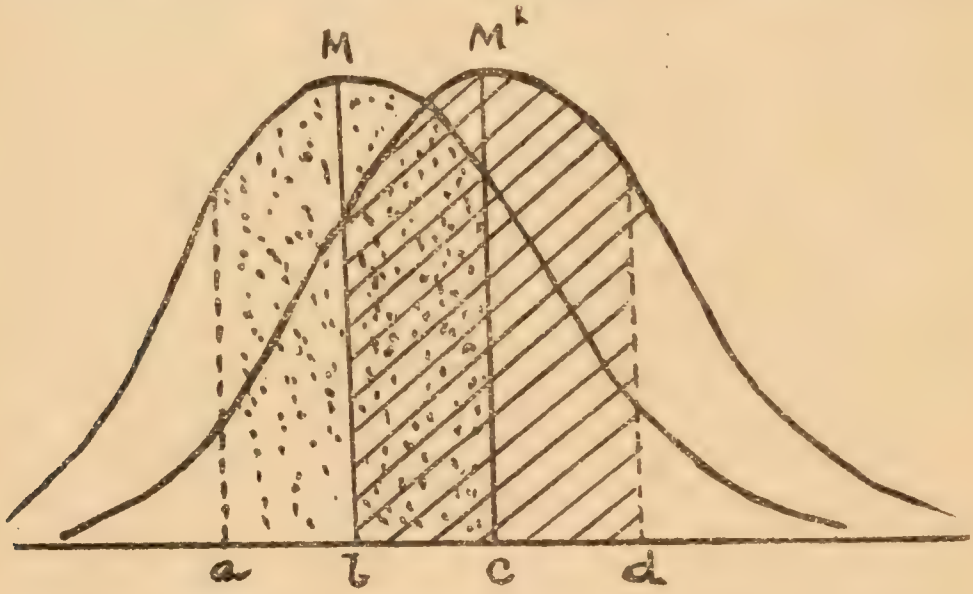

FIG. 1.—The curve M represents, for example, that of children of 11 years, and M^1 those of 12. The mean value, that is to say, that which presents itself most frequently in each group, is that which corresponds to grade *b* of the abscissa for children of 11 years, and *c* for those of 12. The probable difference, supposed here as of the same value for the children of each age, corresponds to the distances *a b* and *b c* for the children of 11, and to the distances *c b* and *c d* for those of 12. One sees that here the probable difference *b c* is equal to the difference of the means *b* and *c*.

val, the fields of the superficies of frequency overlap one another (Fig. 1). That is to say, to return to our example, almost the half of the children of eleven years would penetrate into the sphere of those of twelve, and *vice versâ*. Undoubtedly in this case the distinction which we seek has no meaning. Shall we say, then, that for a test to be one of development it is necessary for the difference of the mean terms for two near ages to be equal to *twice* the interval of dispersion probable for one of these ages? That would be still too small; that is to say, that the probability would be yet too great that a child of eleven years would be farther than this interval in the direction of the children of twelve years (twenty-five per cent. more or less of the children of eleven years would still penetrate into the sphere of those of twelve years). But it is evident, as we have said above, that if the fourth part of the children of eleven years have the grade of capacity possessed by the average half of the children of twelve years (of which we can convince ourselves roughly by constructing two curves of frequency whose maxima shall be at a distance double that of the probable interval, fig. 2), it cannot be said that this grade of capacity is an attribute of one of these ages rather than of the other.

I think that it would be necessary that the difference of the mean terms should be equal at least to *four times* the probable interval to be able to say that a test is truly a test of development and not of individual capacity. But as the question is very delicate, and perhaps the criterion sought varies according to the degree of dispersion, I prefer to leave the solution to our mathematical colleagues, so much the more in that the criterion ought to vary according as to whether the curves of frequency obtained are symmetrical or not. It is also possible that for mental functions which develop rapidly one might have for one of the ages a symmetrical curve, and for the succeeding age an asymmetrical one (if, for example, all the children of a certain age have reached the maximum possible for the development of this function).

Finally, the method proposed would not lend itself to the study of tests which concern, not a graduation of capacity, but simply the fact of success or failure. One cannot then in such a case establish a curve of frequency for a given age. All we have to deal with are percentages. For

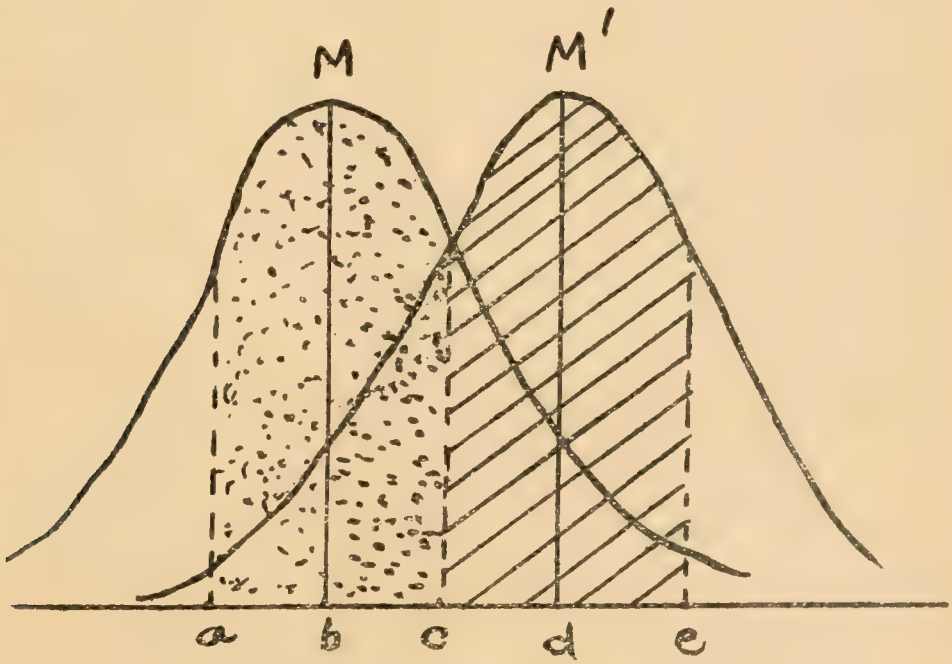

Fig. 2.—The difference *b c* represents the difference probable for the children of 11 years (curve M), and *d c* the difference for those of 12 years (M^1). In this example the difference of the means *b d* equals twice *b c*.

example, forty per cent. of the children of eleven years may have succeeded in the test, fifty-three per cent. of the children of twelve years, eighty per cent. of the children of thirteen years, etc. Such percentages, if the number of those submitted to the test is sufficient, and if the difference found between them exceeds sufficiently the probable interval, show with certainty a relation between age and the development of the capacity examined.

But we are not concerned with this. What we are seeking here is not if such a mental function *progresses* with age, but if it is *characteristic of a certain age level.* I do not believe that this problem can be resolved apart from an arbitrary criterion. We must be able to say, for example, that a test is characteristic of a certain age only when it is passed by at least eighty per cent. of the children of that age, and by not more than ten per cent. of the children of the lower age. But undoubtedly these figures of eighty per cent. and ten per cent. are arbitrary; some will content themselves with smaller numbers, and others will perhaps require higher percentages.

It might be that experiment would show us that no mental process is the exclusive attribute of a determined age, and that in order to find the differences that we seek it will be necessary to take distant ages, as ten and twelve years, for example, or nine and twelve years.

It is understood that the question of psycho-physiological interpretation would still be reserved. If we discover that a function is in close relation to a certain age level, new investigations will be necessary to tell us whether the execution of the test depends on the age itself, that is to say, on a certain degree of maturity of the brain or the mind, or whether age has only intervened indirectly by multiplying opportunities of *exercise* of the function, so that a younger but better exercised child could execute the test as correctly as an older but less exercised child.

I do not, however, wish to deal now with all the questions which this delicate problem of the relations between aptitude and development raise. The point to which I have desired to draw attention is *that the distinction between tests of aptitude and of development cannot be established a priori,* as Meumann appears to think; it must depend on a long experimental determination. Investigations in this direction would be very desirable, not only for the necessities of practice, but also for the knowledge of the intimate processes of mental evolution.

Notes on Word Reversals.

By J. J. Webber, B.A.

There is apparently an inherent tendency in speech towards certain forms of reversal. In Anglo-Saxon our modern words *wasp, ask* and *hasp* appear as *wäps, acsian* and *hæpse,* and these early forms still persist in West Country dialect. The country boy who repeats "His hair is *crips* and black and long" can claim "crips" as Chaucerian (*Hous of Fame*), and "pisky" is Dartmoor for "pixy." Similar instances may be noticed in the early speech of children. Commencing at the age of one year and ten months, a child took over two months to learn the word "feeder," the stages being: "eefwee," "eefer," "feeder." At two years "basket" is pronounced "bastick," and "attic," "akkit." Another child when at this age often said "doog" for "good."

After considerable observation of young children's efforts at speech imitation, I venture to suggest three contributory causes of the phenomenon: (*a*) That in some cases there is a confusing similarity between the interchanging elements, and this leads to uncertainty in reproducing the word; *e.g.,* the fact that *t* and *k* are classified phonetically as hard stops, and *d* and *g* as soft stops, indicates a common element of vocal mechanism employed in these reversing pairs. (*b*) That the power of preserving the order of speech-sounds in a word is not strong in young children, and a prominent, accented, or final sound will force its way to the front in a child's

imitative attempts, causing the rest of the word to be rearranged. (*c*) That the word is simplified to a form easier to say. These causes have reference to reversals occurring in speech, and would not necessarily be all present in a given case.

In normal cases, with practice and natural development of control, the tendency disappears, but reversed forms may become habitual, and be used in some sections of the community as substitutes for the correct form and not as errors due to some such causes as are above-mentioned.

A parallel instance of confusion in interpretation of visual presentations is met with in the difficulty which infants have in distinguishing printed *b* from *d* and *p* from *q*. This may be due to weakness of the power of discrimination. Visual reversal seems unlikely in view of the fact that in the second pair the exchange is practically always in favour of the more familiar letter *p*. Curious reversals are often found in the written work of children. What causes a boy whose pronunciation is quite good to write such forms as "siad," "itno," "hte," for "said," "into," "the"? Two explanations suggest themselves: (*a*) The reversal takes place in the mind owing to lack of control over the order of elements forming the word, and the reverse form is written. (*b*) No reversal takes place in the mind, but the letter occupying consciousness displaces the preceding letter, as it were, at the point of the pen. The former explanation is perhaps more likely in the case of younger children's, the latter in the case of older children's, errors.

Reversal due to other causes is found in reading. Of course, in the purely mechanical work which is often found in the earliest stages, attempts may be made to reverse almost any short word owing to the prominence of the final letter, and lack of attention to sequence. But the commonest and most persistent examples are "on," "no," and "was," "saw," and these will be considered in more detail. In these cases there is no confusion of speech such as gives rise to forms like "bastick" for "basket"; for the reversal only takes place under the conditions imposed by reading.

Reversal which does not give rise to recognisable words dies out quite early; but in the two well-known instances under discussion the cause cannot be merely the confusion arising out of the fact that the reversed form is a known word, otherwise we should find instances like "not," "ton"; "but," "tub"; "raw," "war," in the reading of older children. What, then, are the special conditions obtaining in the case of "on," "no," and "saw," "was"? The following are suggested:—

1. All four words are very common.

2. The child is aware that the letter group composed of *o* and *n* must be "on" or "no," and the group composed of a central *a* associated with *s* and *w* must be "saw" or "was"; and he either guesses or commences with the letter which is uppermost in his mind at the moment.

3. The words are non-substantives, and their reversal does not immediately and obviously destroy the sense of a passage, if the reader is not intelligently looking ahead. For example, there can be little doubt in a child's mind as to which word of the "rat"-"tar" couple ends such a sentence as "Yesterday the cat caught a ——"; but to a reader who does not look far ahead it is quite uncertain as to which of the "on"-"no" couple will fill the blank in "You will find ——" with possible continuations (*a*) "*no* apples on that tree," or (*b*) "*on* some of the leaves a tiny grub."

Similarly in many cases "was" or "saw" at first glance will seem equally correct. In such cases the reversing tendency comes into play, and the reader pulls up after the mistake has been made. It appears that children specially given to reversing words in writing and reading are of weaker intelligence than the average, but it is difficult to determine without ample data whether there is a positive correlation.

Parent Educators.

By Professor Bidart.

Translated by Miss M. S. Ryan, B.A.

6. *The Training of the Child's Will: faults to be corrected.* No human being's will-power is perfect; everyone has some defect.

1. One man acts without thinking: he makes up his mind, as people say, all of a hurry, without sufficient thought. He is *thoughtless* or *heedless*, it is all one and the same thing.

2. Another, on the other hand, thinks too much and does nothing. He cannot make up his mind, he is not firm enough to take a decision. This is the *irresolute* character.

3. A third is not strong enough to carry out what he means to do. He thinks a thing over, he makes up his mind and then he does nothing. He lacks just the necessary impulse to action, he is *feeble*.

4. Then there is the woman who wants first one thing and then another. It is not the thought, the decision, or the energy that is wanting; she lacks constancy. She likes change. She has the *inconstant* disposition.

5. Finally, there are others (but they are less numerous) who persist in a certain course of action in spite of everything, even though it may be wrong. A resolution once made, they cannot go back upon it; they belong to the *obstinate* class.

I. The world is singularly indulgent to the man who is *heedless* because he is nearly always good-natured and quick-witted. There is no defect of character which needs greater attention than this one.

You see two men together: one looks rather uncomfortable, the other seems to be vigorously lecturing him. The former is not a bad man, he is simply heedless. He has probably made some thoughtlessly unkind remark, and that is why his friend has caught him up. He is careless and he has been made to look silly.

You read in the papers of a man who has made some terrible blunder and ruined his own interests. It is not that he is stupid; he has been thoughtless and careless. Now he is to be pitied.

Again, you may come across a poor woman in tears and her children in rags. The husband was an intelligent man and kind-hearted, but he has been careless in the management of his affairs; he has got into difficulties. He has had to take refuge in flight, his family is disgraced and ruined. He began by being merely careless; now he is despicably weak.

A thoughtless person, at first attractive and charming, often ends by becoming reckless and unfortunate, possibly even a danger to society. Let us be on our guard against fostering such a disposition in any of our children.

What is the best method of correcting this fault? "Thoughtlessness is the result of *preferring action to thought*: we must gradually accustom the child to think, to make him form the habit, and thus strengthen his power of thought, for the child who thinks is likely to employ all his powers aright." There is the whole secret of training.

If the child's preference for action is due to an over-active temperament we must try to modify it until he is satisfied with a more moderate activity. If, as is more frequently the case, the preference arises from a marked disinclination to thought, then it is a weakness which needs treatment like any bodily weakness. Any weakness may be cured by following a certain treatment: the treatment in this case is to train the child *directly and continually in attention,* which is obviously the antidote to carelessness.

The child must be called on to pay attention at first after he has done the act, and then beforehand. "He made up his mind without knowing why, he did so-and-so without exactly knowing how. This why and how he can at least know after he has done the act." After the act is over, the child is no longer occupied in it: he will often admit that it was wrong, that he might have done better. "If I had thought I should not have done so-and-so." When the child has reached this stage, we must talk to him thus: "Every

act has its consequences, good or bad, and once the act is committed it is too late to reflect. You must think first and then you will avoid the consequences you have had to pay for. You see, you do not think before you act; you must form the habit of thinking; you cannot be proud of your carelessness like those stupid people who, when they do a foolish thing, exclaim quite happily, 'Oh, how careless I am!'"

After this little talk, we should face the child with a certain little problem. If his decision is made without proper reflection, a word will be sufficient to remind him of what he has forgotten. Graduate the exercises and repeat them.

Recourse may be made to various games like draughts and chess, which require attention; the desire to win will take possession of an easily distracted mind, and the necessity of thinking out the consequences of such-and-such a move compels thought.

Another very efficacious mode of treatment is to apply the same rule over and over again. "We are driven and maintained by rule, especially is this true of a volatile nature, for such a one becomes thereby accustomed to effort, obliged to watch and master himself; he acquires the habit of looking for and realising consequences, he acquires steadiness and seriousness."

II. A child may be *irresolute* owing to a slow moving intellect or a nervous disposition. Your task is to make his disposition bolder and his intellect more alert.

But indecision may also come from want of will, and this is much more serious. The will must be trained directly, but how? There will surely be some occasions when the child who is undecided shows some signs of will: let us make the most of any such favourable symptoms. There will be other occasions when he is clearly undecided: prevent them whenever you can, so that he never has the chance to let his will grow weaker. If you fail to forestall the occasion, then check his indecision by asserting your authority; it is better to take away liberty of action than to leave the child to fetter his own liberty.

Presently, we must fight the spirit of indecision by creating situations in which the child will be obliged to make up his mind, do not let him consult you, and above all make it impossible for him to do nothing. He must make up his mind quickly, one way or the other; there is no time to lose. Maybe even while the child is doing the particular act, he wavers; he says to himself that it might have been better to do the other thing. No, it is too late; once done, it is done for ever. The coward looks behind, the brave man goes on.

Perhaps the irresolution occurs through our fault. A child may get into this state because he is, naturally, very submissive, because he is quite content to do as his parents tell him and never dreams of acting for himself. If you have a child like this, give him as few commands as possible, and leave him many opportunities for acting on his own initiative. The liberty should be real, not fictitious, as when an unscrupulous parent so acts on his child as to lead him to a certain course of action, no other being possible to him.

Sometimes again a parent imagines he has given his child liberty when he acts as follows. If the child goes to the left, the parent gives him various reasons for going to the right but does not tell him which to do; if the child goes to the right, the parent gives him reasons for going to the left; the poor child does not know which way to go. The parent's action, under pretext of helping the child, is really paralysing his will. The child must be left to examine the reasons for his action by himself.

It is obvious that our own example has, in this respect, a great influence on the child. "Nothing makes so strong an impression on a child or an adult as a display of force. The very sight of a person of resolute will, his appearance, attitude, gestures..." everything about him expresses and insensibly communicates the spirit of decision.

Finally, nothing is so valuable sometimes as to be laughed at for our faults. M. Legouve (in *Nos filles et nos fils*, ed.

Hetzel) gives us, from life, a delightful portrait of the irresolute man. A treasury clerk is talking to his wife :

"Mary, would you advise me to take my umbrella?"

"Do as you like, dear."

"Do you think it will rain?"

"Well, I don't know what to say."

"All right, I'll take it."

"Very well."

"Still, if it shouldn't rain, it will be a bother."

"Well, don't take it."

"Of course, I shall get wet if it should rain."

"Well, take it with you."

"You are most annoying. First you say, take it. Then you say, don't take it. Surely you have a mind of your own ! Do you think I had better take it?"

"Yes."

"All right, then, I'll take it... Though the barometer has risen this morning, the sky seems a little clearer... If it gets fine I shall forget all about the wretched umbrella, and then I shall lose it... Upon my word, I certainly will not take it" ("certainly" is the favourite word of undecided people).

Now he starts. Unfortunately in the stand he sees the umbrella, and—he takes it ! But when he gets down to the bottom floor, he leaves it with the hall porter !

Tell this story to the undecided man. remind him of it whenever he shows the least sign of indecision ; he will laugh at his own folly, and he will make up his mind.

Nevertheless, remember this, that reasoning alone is not sufficient ; what is vitally important is to set up the habit of decision.

III. *Feebleness*, or want of energy, arises partly from the child's temperament. You know that when a child is not robust, his circulation is poor and needs to be stimulated by appropriate hygienic treatment. The child who is sluggish or inactive is often so because he is not very sensitive, and until he becomes more responsive he will remain weak. Of course, he is not altogether irresponsive, every child has his vulnerable spot : the golden opportunity for driving or leading a child. The parent must discover this, and make it his starting-point whence he may conquer the whole man. Be it greed, vanity, or self-love, it is unfortunate ; but we must appeal to it for the time being, so as to make the child in question respond to something, and capable of some effort.

As soon as the child, by repeated experiences, has realised the pleasure of action, you will appeal to the pleasure which in itself is good, and you will cease to appeal to the harmful propensity which you have hitherto called in aid.

Later, when the child is about eleven or twelve, you will have to undo part of what you have done ; you will have to stamp out these bad tendencies that you have encouraged ; you will have to explain to your child. You will say : "I did appeal to that motive for such-and-such a reason ; it was a humiliating thing to do, both for you and for me. Now, however, you are wiser and stronger, now you do what you do simply for the pleasure of the action."

Such is a brief outline of the way in which the child's will may be trained. You give the child tasks to perform ; you let him know how to begin them and how to go on ; you never allow him to leave a task unfinished. Should he meet with any difficulty, do not let him give way ; stimulate his self-esteem. "You wanted to begin it," you say to him, "now you must finish it. You would not like anyone to say that you were beaten." If it is really necessary, help him, and both of you work together, and when the task is done, let him realise that nothing is impossible with perseverance.

When you want to judge whether such experiences and teaching have produced an effect, give him something which is really difficult to do. If he finds it too much, give him a little help, but be careful to leave him the pleasure of going on with the task and finishing it. Thus he will acquire a knowledge of his own powers, achieving more to-day than he did yesterday, and to-morrow will be even better than to-day, ever doing and ever advanc-

ing. Later, you may teach him by examples when he is old enough to understand. Never relax your own vigilance in your treatment of your child; never let him feel that you have ceased to trust him, even when things do go wrong.

The obstacles in the way of the child's progress are as nothing to the difficulties which beset the head of the family. As far as possible, when you are in some difficulty, let your child share it; let him appreciate the situation; let him know that you are prepared to face the danger, the steps that you will take to avert it. Initiate him in the stages of a different course of action. Let him come face to face with your real problem; it will be a means for him of strengthening his own will.

IV. *Inconstancy* is a fault that may arise from the mind or the heart: from the mind, when it is perpetually debating and weighing the "pros" and "cons" when what is wanted is action; from the heart, when there is the changeable disposition which varies from hour to hour, and never knows what it wants or why it wants something different.

The child who belongs to the first class must be steadily urged on and never allowed to change his mind. Even if his intention is not the best possible, see that he carries it out. Another time he will think more carefully, and attain a better result. The point is that he must persevere.

The child who belongs to the second class must be treated in the same way as a child who is undecided. (1) Make it impossible for him to have opportunities of changing his mind. As Liebrich says: "Do not permit him for one moment to wish to do something and immediately after to wish not to do it. Let him realise what he asks for before he asks for it, and also what he is going to do with it. If he refuses something which you have offered him, do not offer it a second time. He must come to realise just as clearly why he refuses a thing as why he asks for it." (2) As soon as he shows signs of some stability, test him and thereby gradually fortify him by placing before him inducements to change his mind, with the object of getting him to resist them. In brief, strengthen his will, first, by not confronting him with obstacles, and, secondly, by leading him to overcome gradually temptations to changeableness.

V. *The Obstinate Child*, sometimes hardly of the nature of the self-willed, is really much better than the heedless or the feeble; at least, he wants what he wants. He must be led to want what he ought to want. The educator's training must be directed not solely to the will, for that already exists to a considerable degree, but also to his conscience, that he may direct his will towards what is good. Something will be achieved in the earlier struggles with selfishness which easily leads a child into bad ways, and with pride which makes a child persist in what is wrong through very shame. But the main effort must be made direct. Obstinacy increases by successful repetition of the offence. Clearly, then, it must not be allowed to succeed, nor must the child have opportunities of indulging in it.

But how can we prevent it from *exercising itself?* We must somehow or other prevent the occurrence of fits of obstinacy. If we fail to anticipate them, at least we must shorten their duration. Not by words; the more we coax or threaten, the more will the child persist in his obstinacy. We must use our authority; the child has temporarily forfeited the privilege of liberty.

Again, how can we prevent the obstinate child from *triumphing?* If by his self-will, he will merely do harm to himself. Warn him of the consequences and then leave him alone. If however, he will do harm to another, then definitely forbid the action.

How can we secure the triumph of the *true* will? We must work slowly, must gradually accustom the obstinate child to change his purpose when circumstances demand it, and to listen to the dictates of duty or reason.

To conclude, be on your guard against weakening the energy of the self-willed child; divert the energy into the right channel. Few commands; lead the child

to want to do what is right of his own accord, to be unselfish, and to think of others. He will cease to be self-willed, but his disposition will remain strong !

Suggestions for Study and Practice.

The Need of Physiological Grading in Education. " For a complete and comprehensive system of mental tests to be used as a measuring scale of intelligence, it will be necessary to go further and supplement the psychological tests and include the essential criteria for determining the physiological age of the child. We have now reached a stage in our knowledge of child development when we can begin to search intelligently for these physiological criteria in order to formulate more adequate tests as measuring scales for intelligence and school standing. The grading of our schools must be adjusted to fit the mental and physiological age of the child in the place of its chronological age, which is but fairly representative of the other two ages...

" In undertaking to classify the different periods of growth of early life on an anatomic basis which will be of practical school use, it is evident that some reliable anatomic standard should be readily obtained and should be determined in the living child with the least degree of complexity and in the most simple form possible. For the purpose of obtaining a practical and rapid knowledge of the progressive normal changes which take place at different periods of child life, a practical and reliable index of development is represented by the hand and wrist... [which] furnish a progressive series of anatomic development year by year."—*Francis Lee Dunham, M.D.,* Clark University (U.S.A.), on " Somatic Development, a Criterion of Mental Measurement," in *The Pedagogical Seminary,* September, 1915.

Cloth Window Ventilation. "The cloth ventilating screen is a closely fitted wood screen covered with heavy finely woven unbleached cotton cloth (Black Rock for ordinary exposures and Piquot for exposed situations). These are placed in the window frames outside the lower sash, which is then raised. Each schoolroom requires about one square foot of screen per pupil. The frame need not have mitred or tenoned joints, but simply secured with two ten-penny wire nails at each corner to the top and bottom pieces. When the cloth is put on and fastened by the fillet in the groove the frame is perfectly rigid and strong, as the stretched cloth holds it together. A nice quality of cypress makes a very substantial frame which can be stained with a solution of one part of asphaltum varnish in sixteen of turpentine...

" The cloth screen acts as a permeable membrane, allowing the outside air to slowly diffuse into the room; the closely woven cloth divides the incoming air into currents of infinitesimal size and of very slow velocity, so that it is quickly mixed with the warm air of the room with no perceptible draughts. [It] also acts as a filter, removing the dust from the atmosphere, and as a result the screened rooms are practically free from dust unless dirt is brought into the rooms upon the children's feet...Screened rooms are practically free from odours. Generally the odours from the clothing in the coat rooms add very much to the already bad air of the schools, which can be remedied very effectually with cloth window screens in the window of every coat room.

" In a schoolroom already provided with adequate window opening the character of the light is improved by the screens, which break the direct light into an infinite number of rays which are scattered throughout the room in a manner that is comfortable to the eyes. The humidity of the room is [made] practically that of the outdoor air, and a temperature of comfort is more easily maintained...There is a slow current of air diffusing into the room, and little or no heat loss from window conduction [there is substantial loss with glass]...

" By its use as an air filter the cloth

will sooner or later become very much discoloured and filled with dirt, when it should be removed and new cloth put on; there is no use trying to wash out the dirt : it has become a part of the fibre of the cloth."—*John B. Todd* on "Cloth Window Open Air Schools," in *School and Society* (U.S.A.), August 28th, 1915.

Drudgery in Education. "There must be a certain residual drudgery...We do not want to give training in drudgery; what we want to do is to give such a view of drudgery that we shall be able to turn drudgery into something higher...Some people say drudgery is as good as a rest from work...Drudgery may be regarded as a stimulus to the enjoyment of higher things...The moral steadiness that may come from drudgery is worth considering...We believe that education demands a certain amount of what is commonly called 'drudgery,' but that drudgery has to be shot through with purpose on the one hand and interest on the other. If we can get our pupils to do certain things because they want to do them, we put them, I think, in the best position for making the most of drudgery."—*Professor John Adams* on "The Psychology of Drudgery," in *Child Life*, June, 1915.

The Training of Teachers for Defectives. Here is the summer school course of training offered at the Minnesota School for the Feeble-Minded, at Faribault, of which Dr. A. C. Rogers is the superintendent :—"(1) Sociological Aspects; (2) Feeble-minded and Backward Children in the Public Schools; (3) Physical Defects and Causes; (4) Mental Characteristics and Psychological Principles in Care and Training; (5) Training in Teaching; (6) Training in Handwork; (7) Mental Examination; (8) Practice Course in Mental Examination; (9) Seminar; (10) Research Problems." Where in the British Isles can anything like this training course be obtained?

Child-Study Association and the Constituent Societies.

The Birmingham Society.—The following preliminary arrangements for lectures have been made for the Session 1915-16 :—

October 19th.—*War and the Child,* Percy Alden, Esq., M.P.

November 16th.—*Eurythmic Methods of Dalcroze,* Miss Elsie Ball.

December 7th.—(Subject to be fixed), Herbert G. Wood, Esq, M.A.

January 26th.—Presidential Address, Mrs. George Cadbury.

The Hartlepools and District Society.—The lectures, as arranged so far, are as follows :—

September 17th.—*Children's Drawings,* Miss Margaret Drummond, M.A.

December 9th.—*The Way of Reform in School Teaching,* Professor J. J. Findlay, M.A.

The London Society.—The following are the lectures arranged, up to the present, for 1915-16 :—

October 21st.—*The Girl Worker,* Miss N. Adler.

November 4th.—*The American Child at School,* Miss Clara Grant.

November 18th.—*Standards of Proficiency in Reading,* Dr. P. B. Ballard.

December 9th.—*Children's Interest in the War at Different Ages,* C. W. Kimmins, M.A., D.Sc.

Notices and News.

The Froebel Society's lecture programme, autumn, 1915, is :—Wednesday, October 6th : "The Teaching of Geography to Young Children," Miss E. G. R. Taylor, B.Sc. ; Wednesday, November 10th : "The Imagination in Education," Greville Macdonald, Esq., M.D. ; Wednesday, December 8th ; "The Physical Basis of Mental Deficiency," F. C. Shrubsall, Esq., M.D., F.R.C.P. The lectures are to be given in the College of Preceptors, Bloomsbury Square, W.C., at 7.30 p m. Non-members are charged 6d. for each lecture, for which a ticket must be taken beforehand. (The Secretary, Froebel Society, 4, Bloomsbury Square, W.C.)

The Montessori Society is holding a meeting on December 1st at 7.30, at The Teachers' Guild, 9, Brunswick Square, W.C. The subject is : "Records in a Montessori School."

Reviews.

1. *The Use of Money.* By Professor E. A. Kirkpatrick. Pp. xii., 226. 2. *The Wayward Child.* By Mrs. Frederic Schoff. Pp. xix., 274. The Bobbs-Merrill Company, Indianapolis (U.S.A.). Price of each one dollar net.

These two books belong to the "Childhood and Youth" series, in which are included, amongst others : "Self-Help," by Dorothy Cranfield Fisher ; "Fear," by G. Stanley Hall ; "Learn-

ing by Doing," by Edgar James Swift. The series is under the general editorship of Professor M. V. O'Shea, whose name is in itself a sufficient guarantee of the high quality and helpfulness of the books.

Professor Kirkpatrick strikes a new note in his book, *The Use of Money*. His standpoint is that the child needs financial training because "financial problems are deeper and more fundamental than rules of arithmetic. They involve choice as to what our life shall be, determine what effort we shall put forth, and what desire we shall satisfy...That for which you save and spend tells what you are and what you wish to be." He urges that we must give children "opportunities for educative experiences with money," which involve:—free spending before earning; earning before spending; saving; keeping accounts; practical financial training in connection with school work, etc. The book is written with the force, lucidity, and attractiveness which we have learned to expect from the author. It is full of facts, practical examples, guidance, and suggestions. Parents and teachers will achieve great good for themselves and their children by the study of this book, and the practice of the principles it expounds so clearly and well.

Mrs. Schoff's book on *The Wayward Child* is "A Study of the Causes of Crime" among children and others, and is largely based upon questionnaires and visits to prisoners, and its aim is to show that "prevention of crime instead of punishment must be the great work of the future," since "that, hitherto, crime has increased is the natural result of the treatment of children in the past," in the home, the school, and the courts. Parents, teachers, social workers, and court officials should all be the wiser and better for reading this book, which is full of interesting and instructive—though often pathetic—matter.

The following are some of the headings under which the subject is dealt with:—Crimes that fill Prisons; How Homes promote Criminality; Boyish Pranks treated as Crimes; Schools and the Wayward Child; Reform Schools, Juvenile Courts; Probation Work; A Children's Charter.

The Health of the Child. By O. Hildersheim, M.D. Pp. xii., 111. Methuen. Price 1s. net.

This is a manual for mothers and nurses on the upbringing of children, and its purpose is to show that "to the rearing of a healthy child there needs no complex system of theory, but only the knowledge and practice of simple rules of health." We believe this to be a thoroughly sound principle so far as parents and nurses are concerned. It only needs that a thoroughly competent authority should, clearly and convincingly, lay down these rules. Dr. Hildesheim's former position as House Physician at the Great Ormond Street (London) Hospital for Sick Children is a sufficient guarantee of the scientific authority of this book. But we wish that he had not tried to express the whole theory of the educational training of a child in about fifteen hundred words in which he says:—"Systems of education come and go...Their success has depended far more on the personalities than on any intrinsic features of the method...Our ideas of education are still extremely inchoate." Surely Dr. Hildesheim owes it to himself and all the psychologists and educationists to justify such sweeping statements, unless he is speaking simply for himself, while using the author's plural!

The Religious Education of the Child. By Robert R. Rusk. Pp. viii., 84. Longmans. Price 1s. 6d. net.

The author writes: "At the outset we should like to disclaim the possession of any new gospel of religious teaching. We propose but to apply to religion the principles and methods which it is our daily duty to expound in connexion with other subjects." As we should expect of Dr. Rusk, he holds that "Religious teaching must train to action, as well as train in knowledge, and it must arouse the emotions, since it is from these that action often springs." Possibly he would accept the suggestion that "as well as train" should read "so as to train"—in knowledge.

While the little book is full of wise suggestions and fruitful hints for those who already know enough to profit by them, we cannot but feel that this is one of those little books which are not books, for they do not contain enough exposition to help the unlearned adequately, nor enough of new ideas to satisfy those who know enough to follow the author clearly. We venture to hope that Dr. Rusk will see his way to write on the subject of "Religious Education" after the manner in which he has written on "Experimental Education."

Everyday Pedadogy. By Lilian I. Lincoln, Supervisor of Training in the State Normal School, Farmington, Maine (U.S.A.). Pp. viii., 310. Ginn. Price 4s. 6d. net.

This is a type of book which was the common type thirty years ago, but is seldom seen now-a-days. It attempts to deal with almost every aspect of the life and work of a school, and to give precise guidance as to what to do and how to do it. As the author truly says: "the ideas here set forth are [not] new. The best of them are very old." It is written in a clear and direct style, and gives an interesting view of American schools and methods in country districts—it is drawn up "with special application to the rural school." The binding and printing are first-rate.

Publications Received.—*Journal of Education; Educational Times; Child Life; Parents' Review; Eugenics; Secondary Education; Educational Review* (U.S.A.); *The Pedagogical Seminary* (U.S.A.); *The Bulletin* (U.S.A.); *The Training School Bulletin* (U.S.A.); *El Monitor de la Educación Común* (Buenos Aires); *School Life* (Petrograd); *L'Educateur Moderne; Archives de Psychologie; The Aim and Method of Primary Department Work*, pp. 11, price 1d. (T. French Downie).

Child-Study.

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Feeble-mindedness in its Racial Aspects.

By Major Leonard Darwin.

(*By permission of the Editor of "The Special Schools Quarterly."*)

Our main duties in life are unquestionably those which we owe to our neighbours. But everyone will admit on consideration that we also have obligations in connection with posterity—that is with regard to the unborn, whom we shall never see, and whose gratitude we can never win. The teachers in Special Schools are, in my opinion, doing noble work in improving the lot of their feeble-minded pupils, and that work should receive every recognition and encouragement. But I wish to-day to consider whether these same teachers may not have duties of an even more thankless and difficult nature incumbent on them in connection with the feeble in mind who may or may not form part of the coming generations.

There are many persons who dislike the whole subject of heredity, I presume because they would prefer to believe, if they could, that there are no natural limits to the benefits which might be conferred on human beings by existing human agencies. But we all really know that there are limits to the wits which can be cultivated in the really stupid boy, and such limitations have to be acknowledged. It is, indeed, folly not to acknowledge the facts of life; for, if we let our prejudices overcome our reason, our systems of social reform must be built on sand. We must endeavour to ascertain the truth concerning this difficult question of heredity.

In discussions on this topic we often hear instances of remarkable differences between parents and children brought forward as proofs that the scientific conceptions concerning heredity are false. Such instances, however, not only prove nothing of the kind, but they are exactly what the scientific student of heredity would expect to find. When it is said that a quality is inherited, all that is meant is that if the parent has it in excess, the children will, *on an average,* or as a general rule, also have it in excess. Thus when we say that feeble-mindedness is unquestionably inherited, we do not deny for a moment that, if the feeble-minded marry, some or many of their children will be perfectly normal. All we assert, and this we do assert with absolute confidence, is that such marriages will produce a considerably larger proportion of mentally defective children than will the marriages of ordinary citizens. I believe that no numerical enquiry has ever been made in connection with this question which does not fully support this conclusion.

I have said that feeble-mindedness is inherited, though it would be more correct to say that some general defect of the nervous system is the fault which is likely to be transmitted from father to son, and that mental deficiency is only one of the manifestations of this defect. Dr. Tredgold tells us that, in his experience, "it is commoner for the ancestors of defectives to suffer from such conditions as insanity, epilepsy, dementia, and allied psychopathological states, than it is for them to be actually mentally deficient" (*Mental Deficiency,* p. 24). And in the same way we must expect, if we allow the mentally deficient to marry, that their descendants will not only contain a high proportion of the mentally defective, the insane and the epileptic, but also that there will be

amongst them more criminals, paupers, consumptives, and invalids than would be found in a similar number of the normal population.

In order to more definitely illustrate the importance of this subject let me give a very few figures. Dr. Tredgold investigated the families of sixty-one feeble-minded women in Somersetshire with the following results (see Tredgold, p. 447): Nineteen of these women were married and at that time had had eighty children; and of these eighty children, sixteen died in infancy, twenty were physically delicate or mentally dull, and nineteen actually imbecile or feeble-minded. As to the forty-two unmarried feeble-minded women, they had produced seventy-eight children, and these could not be examined so closely, as many of them had been lost sight of in the neighbourhood. It appeared, however, probable that these illegitimate births had produced about as large a proportion of feeble-minded children as had the legitimate births. To put it shortly, it appears from these figures every feeble-minded woman who is allowed to marry, or to become a mother, is likely to produce at the very least one feeble-minded child; and this is putting it very low. It is very important to note that the families of the feeble in mind are apt to be exceptionally large; and this is in part the reason why a single marriage amongst this class may have such disastrous results. I should add, however, that I am fully aware that further statistics are required, and I am tempted to point out that teachers in Special Schools have exceptional opportunities for noting down the facts concerning the near relations of the mentally defective; though it is obvious that such enquiries necessitate great tact and discretion.

It appears, therefore, to be indisputable that if the feeble in mind were properly cared for in institutions, and if they were not allowed to become parents, a great reduction in the number of the feeble-minded in the generations of the future would be the result. Mind, they must be properly controlled; for Dr. Tredgold mentions the case of a feeble-minded woman who gave birth to four illegitimate children without ever leaving the precincts of a workhouse! (Tredgold, p. 452.) But the teachers in Special Schools may say that this has nothing to do with them, for they only deal with children and not with adults. In reply it may be urged that a strong prejudice exists against exercising the control over the mentally deficient which it is absolutely necessary should be exercised if the desired results are to be obtained, and that teachers in Special Schools have exceptional opportunities of influencing public opinion for good or for evil in this matter. Before using their influence they must of course make up their own minds what is the right course of action to pursue, and to do this involves a certain amount of study. I have purposely mentioned Dr. Tredgold's book because in it this difficult question is treated in an exceptionally wise and fair manner by one who really knows what he is writing about.

Should a study of the subject lead to the conviction that the feeble-minded must be placed in institutions or under control, and prohibited from marriage, as I think it inevitably must, then the Special School teacher can do good work in letting it be known that this is far the kindest course to adopt as regards these unfortunate beings themselves. These teachers will have seen how readily the mentally deficient respond to kindness and care when young, and that it is therefore possible to make their lot in life at all events a tolerable one. Probably also they will have many opportunities of watching the lives of their pupils after they leave school, when I fear it will not be long before they come across cases of over-work combined with wretched pay and neglect at home. It seems to me it would be most desirable, if it is not already done, that teachers should be given opportunities of visiting the existing institutions where the adult feeble-minded are cared for; because their descriptions of the happy faces to be seen there, when contrasted with what they will certainly get to know about their lives

when at large, would make a most telling argument in favour of segregation.

Those who are in charge of Special Schools take a laudable pride in their work, and point with justifiable satisfaction to the great improvement which is undoubtedly often effected in their pupils. But here is a danger to be guarded against, namely, the danger that this right and proper pride should lead to an exaggerated belief in the change which can be effected. Teachers must remember that the same quality which makes the feeble-minded respond readily to good influences may also make them equally ready to yield to the temptations of bad company. It is no doubt especially hard for those who are striving to cultivate the weak intelligences of this class to acknowledge that in most cases it is impossible to make them fit to face the world unprotected. But it is really especially necessary for teachers to acknowledge this truth, and thus to persuade the public of the necessity of safeguarding the mentally defective from the misery which a life of so-called freedom is certain in their case often to entail. But the point I wish especially to make is that if teachers, when watching the steady improvement made in their schools, get carried away by their enthusiasm, and are led to believe that not only will their pupils be fit to undertake the work of ordinary citizens, but also to marry like ordinary citizens, then their enthusiasm, so noble in many respects, will have a baneful influence on the generations of the future.

I would ask teachers to imagine what they would feel if, through their influence, a marriage took place which resulted in feeble-minded children appearing, not only in the next generation, but generation after generation for long afterwards, children who, but for their influence, would never have entered on their life of toil and trouble. To show how grave may be the injury thus inflicted on the race let me give one more instance. One Martin Kallikak was married in 1837. Both he and his wife were sound in intellect, and their descendants, numbering several hundred, have all been normal as far as can be ascertained. But this man had an illegitimate child, the mother being feeble-minded, and from that child have sprung no less than two hundred and twenty-two feeble-minded persons; though the conditions of their lives appear to have been the same as those encountered by Kallikak's legitimate descendants. This is no doubt an exceptionally bad case. But surely it may be quoted as a warning in regard to the responsibility which anyone takes who does encourage the marriage of those whose intellect is very defective.

Thus far I have spoken of the care of the feeble-minded only in so far as it is undertaken in institutions. It is, however, to be remembered that the Mental Deficiency Act allows guardians to be appointed, in which case the individuals in question may remain in private houses and what is called at liberty. If the guardians are honest and suitable people, this may often be the best arrangement; for their powers, which are the powers of a parent over a child, are amply sufficient for all purposes. But careful inspection is necessary, especially in the case of adult feeble-minded males. For it must not be forgotten that if near relations of the mentally deficient are appointed as their guardians, the risk of those guardians being persons below the average, both in intellect and in morals, will on that account be considerably increased. Persons of this type will often only desire the presence of the feeble in mind in their homes for the sake of extracting work from them, in which case to describe their lives as being lives of liberty is utterly misleading. But the point I wish to make especially is that if guardians of a low moral type are appointed, they will not raise the slightest objection to the feeble-minded men acting immorally, and becoming the fathers of illegitimate children. Here is a danger which all who are both interested in the future of the race and have experience as to the mentally defective can do great good by emphasizing; for it is certainly a danger against which adequate precautions must be taken.

There is one other direction in which Special School teachers have it in their power to obtain racial advantages for the nation of the future. It is nearly always true that our efforts to aid the unfit are less successful the more unfit is the individual we are dealing with; and it follows that by such care we generally help to differentiate more clearly the fit from the unfit. Now it has been stated that amongst the apparently "feeble-minded" at schools there are always a certain proportion who are merely very backward, just as there are some children who are very clumsy without being in the least deformed. They may be very bad at lessons, but bright and intelligent as regards many things connected with their own home lives. Now this is a class which, from the eugenic point of view, occupies a very different position from those whose brains are really defective or, as it were, actually deformed, and the task of distinguishing this class from those who are genuinely feeble in mind is one to which the teachers in schools should devote special attention; granted that the facts as reported are really correct. And such efforts will have beneficial racial effects; for the more clearly the genuinely feeble in mind are singled out from the rest, the more easy will it be to insist on their refraining from parenthood.

What I have endeavoured to show in these brief remarks is that these eugenic considerations do not lie outside the thoughts which ought to be in the minds of teachers in Special Schools, and that the demands of eugenists do not in the least run counter to the demands either of morality or of education. Let me conclude by illustrating this point by means of analogy. The directors of a steamship company have two distinct duties thrown on them, to both of which they must devote their best efforts. They must see that each ship as it is launched must be well fitted up for its long voyage through rough waters. But they must also look to the future and see that the ships not yet built shall be designed as well and if possible better than those now afloat, so that their chance of shipwreck shall be less than that of those now actually sailing on the stormy ocean. Teachers in schools are fitting up the little vessels in their charge for their voyages on the rough waters of life, and on their school life will largely depend their chances of finally coming safe into port. This is the main and the noble duty of the school teacher. But let them also occasionally think of the myriads and myriads of human vessels who, when launched into the world, will form the countless generations of the future, and how their chances of making happy voyages will in part depend on the care with which we all now study these questions connected with their well-being, and on our readiness to make sacrifices for the future of our nation.

The Size of the Special Class.

By Henry H. Goddard, ph.d.

(From "The Training School Bulletin," June, 1915, Vineland, New Jersey, U.S.A. By permission.)

It seems to have been generally accepted that the "special class" for defective children in the public schools should not number more than fifteen pupils. As long as it was believed that there were only a few such pupils in a school system and that a few classes would care for them, this number was unquestioned. But we are discovering that the moment we turn our attention to this problem and think of segregating in special classes all such defective pupils, the number becomes so great that the demand for teachers is far more than the supply. To meet this difficulty the question has arisen, "May we not increase the number of pupils in a class?" Especially does this plan at first sight seem reasonable in those systems where, instead of separate classes in public school buildings, there is a centre or school for defectives where they are carefully graded according to their mentality and the work they do. Here it is thought by some it may surely be allowed to have more than fifteen in a class.

The problem should be examined very carefully, and every other means of solving the difficulty—the discrepancy between the number of pupils and the number of teachers available—before this method of increasing the number of pupils per class is resorted to. It will not, for example, solve the problem if, in our efforts to reduce the number of classes and, consequently, the number of teachers required, we take a step which discourages even the teachers who are now willing to undertake this work, even under present conditions. One of the things which compensate for many disadvantages is the uniform custom of having small classes of fifteen or less. It is almost certain that if the number of these children in a class were to be increased to twenty or twenty-five, not only would many teachers who now think of going into this work be discouraged from doing so, but many teachers who are already in it would give it up. Even as it is, many teachers have given up, finding the work too taxing and wearing upon the nerves.

It must not be forgotten that the members of a special class are *peculiar* individuals. The fact that they are graded according to mentality or according to the work they can do, does not make them alike as normal children of the same age are alike. They have their individual marks—peculiarities—and, unlike the normal child, they have no power of control or no power of adapting themselves to the rule of the class. Each one wants to do his own will in his own way at his own time. It is with the utmost difficulty that they can be made to work together. If they are to be trained at all, they must have individual attention. Experience has proved that such individual attention cannot be given to more than fifteen, and it is much better where there are only twelve or even ten.

The great function of the teacher of defective children is to impress upon their dull and sluggish nervous systems certain habits of reaction which are essential to their life and happiness. Such habitual reactions cannot be insured unless the teacher is able to give sufficient time to each individual, to be certain that he does not break the habit before it is formed. If she has too many children in her class, this will be the inevitable result, and, instead of a group of children moulded into some sort of reasonable order, there will be a group of children in whose nervous system chaotic responses are developed instead of cosmic; in whom irregularity and waywardness is the rule, instead of systematized responses to given stimuli. It will never profit to gain the whole world and lose the soul of the system.

Experience has demonstrated that as a rule fifteen is the upper limit of possibility. It perhaps cannot be denied that there are special and exceptional cases in which a class of fifteen is so well grouped and organised that a teacher could take on a few more without breaking. But these are the exceptions, few and far between, and to change the rule in order to adapt to the exceptions would be the utmost folly. Everyone believes that there are many children in our public schools for whom corporal punishment would be the quickest and surest salvation, but most educators are agreed that to allow promiscuous corporal punishment by teachers in general is impossible. To enlarge the special class because in rare instances a teacher may handle more than fifteen would be folly.

The work of segregating the backward pupils is progressing admirably. Teachers are grappling with the problem heroically. To increase their burden would produce a discouragement that would nearly, if not quite, ruin the whole movement. Better by far obtain more teachers by increasing the salaries and thus inducing more teachers to go into the work.

The Results of Rational and Conventional Spelling Compared.

(A School Experiment in Teaching Reading.)

By Professor Walter Rippmann, M.A.

The following account of an experiment in starting with a rational spelling before teaching the conventional will be of particular interest to the teachers of young children. A comparison of what can be achieved when the language taught has a good spelling, like the Italian, with the results obtained in our English schools has been forced upon us of late; we ask ourselves why the English child does not "explode into reading and writing" like the Italian child of whom Dr. Montessori tells us. Any efforts directed to reducing the waste of time, especially in our elementary schools, entailed by the teaching of spelling deserve the most earnest consideration.

This experiment shows that, when children start by using a rational spelling, they acquire in *fourteen months* the power to read and spell in the conventional way as fluently and correctly as others who have been occupied for nineteen months with the conventional spelling only; and, what is more, their speech is distinctly better. There is nothing surprising in this to those who appreciate the value of phonetics; but it is good to have a practical demonstration, and we owe a debt to those who undertook the work.

The report given below is the work of a Scottish student of method.

"A short time ago, along with a member of the Committee of the Simplified Spelling Society, it was the good fortune of the writer to visit a school 'somewhere in Scotland,' and to see, or to be exact, to hear, the results of an interesting experiment that had been made in the infant department of the school.

"The subjects of the experiment had been caught young—as soon, in fact, as they went to school. They were about a dozen in number. For the first few months of their school life they had been taught as a separate class in reading. Their text-book was not the ordinary text-book set up in the ordinary spelling, but a special book called "Nurserie Riemz & Simpl Poëmz." This had been supplemented by suitable extracts from the books in use in the school printed on the blackboard in simplified spelling.

"This special class was taught by the infant mistress herself at the same periods as the other children of a similar age who were taught the conventional spelling in the usual way.

"These pupils had not been specially selected. They had been taken at random from a group of incoming children at the beginning of their school year.

"As far as possible, the simplified spelling section of the class got lessons of the same duration as the "nomic" section. But an unusual amount of sickness amongst both teachers and pupils interfered somewhat with this arrangement. In spite of some little interruption, the "Furst Reeder" was overtaken in ten months. Thereafter the simplified spelling section was put to the ordinary senior infant work, taking their places along with children who had been a little longer at school.

"The Headmistress reports that when they joined the others, the simplified spelling pupils were very apt at reading and spelling passages containing fairly ambitious words, so long as these were printed in simplified spelling. So far as the pupils' experience went each sound was represented by a symbol or group of symbols. There were no exceptions, and there was nothing to cause hesitancy. They knew nothing of the irregularities of the common spelling.

"The non-simplified spelling section, on the other hand, had become accustomed to the idea of exceptional and 'look-and-say' words, and also to the fact that one sound may be represented by more than one symbol, while conversely one symbol or group of symbols may represent several sounds. This section was familiar with irregularities.

"It was found that the thorough training that the simplified spelling pupils had received through their use of a consistent spelling, made them particularly alert in observing the relations of sounds and symbols, and they passed through the 'transition' stage more easily than had been expected.

"At the date of our visit these simplified spelling pupils had been fourteen months at school. They were brought before us as a section. Books in the ordinary spelling were put in their hands, and each child read a passage, after which he (or she) was given certain words to spell—no child was omitted either in reading or in spelling.

"Next about the same number of children of the other (non-simplified spelling) section who had been nineteen months at school were brought in. They read the same passages from the same reading book, and were also given words to spell.

"On the whole, the reading of the two sections as regards the mere naming of words was very similar. Words of irregular spelling that gave the first section trouble gave trouble to the second section also.

"The spelling test did not reveal any difference in the matter of attainment. There was, however, a noticeable difference as the result of the speech-training which the pupils of the simplified spelling section had received. They had a freer, clearer, easier pronunciation, and a more distinct clear-cut articulation, than those of the nomic section.

"To sum up: the simplified spelling pupils (taken, it may be repeated, at random from a group of new pupils) after ten months' instruction in simplified spelling and four months in ordinary spelling, read as well and spelt as well as the non-simplified spelling pupils who had had nineteen months' instruction in the usual methods.

"The balance was altogether on the side of the children who had been taught on the new lines. They had had a better training in the relations of sound and symbol, they had acquired a better and a more natural utterance and expression, and had laid a more solid foundation for the subsequent cultivation of a polite form of speech. That, too, under conditions which the Headmaster and the Headmistress responsible for the experiment did not consider altogether favourable."

The work of nineteen months done in fourteen! And yet teachers continue to ask: "What of the transition stage? And what of the spelling?"

The answer may be found in the results of this experiment.

Rev. Henry Wotton.

A Pioneer in Child-Study.

By H. Holman, M.A.

There are few things more chastening, and more helpful, to the sincere and scientific student than occasional glimpses into the remote past of the subject in which he is most interested. To see the size of the source from which this particular river of knowledge has flown; to know the kind of man who, so to say, tapped the spring; and to find that the origins of all that seems most modern and profound, are but items in the daily rounds and common tasks of humanity, as seen and understood by the wise observer—these are likely to enlarge his mind, though they may contract his conceit. Besides which no one fully knows a subject until he knows the history of its growth, for therein are seen, in their simplest and clearest forms, the fundamental elements of which it treats, and the processes by which these attained to their present form.

Although we seldom get such a striking instance of the separate discovery of the same great truth, as in the case of Darwin and Dr. A. R. Wallace, at the same time we find not a few cases of the anticipations of the discoveries ordinarily attributed to certain great men. Thus both Pestalozzi and Froebel anticipated the Darwinian principle of evolution. As a matter of fact, every intelligent and inquiring mind discovers, or re-discovers, more or less of the

great fundamentals of knowledge. Henry Wotton is an example of this truth, and, fortunately, he has left a record of his work : a record that is hard to beat for its human interest, and its value as an exposition of the scientific method in what may be called its crude form, *i.e.*, where the purely scientific attitude is forcing its way as it were, through the prejudices and ignorances of the most primitive stage of knowledge in a specific subject—Wotton firmly believed that " all solid learning are fetched from authors in those three languages " (Latin, Greek, and Hebrew).

Although the book was not published till 1753—after his death—the dedication was written in 1673, and the notes for it may have been written from 1669 onwards. Here, then, is a clergyman living in a remote country parish, a contemporary of John Locke, and a predecessor of Rousseau, Pestalozzi, and Froebel, who, by careful observation, study, and experiment, with his own child, discovered at least the chief elements of some of the deepest and truest educational principles. But little is known of this early educationist. He was educated for seven years at the Free School at Canterbury; he lived in the house of Meric Casaubon —a prebend of Canterbury Cathedral, and a famous classical scholar of his time —who trained him in Latin and Greek (see *The Dictionary of National Biography*); and he afterwards went to Corpus Christi College, Cambridge.

We find from his book that: like the modern experimental pedagogists, he insists on the basing of principles on the knowledge of facts obtained by observation and experiment; like Rousseau, he urges that we must follow nature; like Herbart, he insists that the learner must be interested in, and get pleasure from, his work; like Froebel, he believed in joining in the child's play; he pleads for, and practised, the giving of the greatest possible freedom to the pupil; he determined the kind and amount of work to be done by the capacity and inclination of his boy; he correlated the learning of languages in such a way that knowledge of one was made to help in the learning of another; he applied the principles of going from the more easy to the more difficult, from the known to the unknown, and from doing to knowing; like Madame Montessori, he disbelieved in immediately correcting a learner's mistakes, instead of letting him learn to correct himself; and so on.

The work and words of such a man are well worth studying, even in these days when child psychology and experimental pedagogy have almost made some forget the rock whence they were hewn. We will now let Henry Wotton speak for himself, through quotations from his book entitled : " An Essay on the Education of Children, in the First Rudiments of Learning. Together with a Narrative of what knowledge, William Wotton a child six years of age, had attained unto, upon the improvement of those rudiments, in the Latin, Greek and Hebrew Tongues.

By Henry Wotton, of Corpus Christi College, Cambridge, and Minister of Wrentham, in Suffolk.

MDCCLIII [Price 1s] "

His general attitude towards the subject of education is set forth in the dedication (to King Charles II.), when he says : " The education of children is the improvement of the noblest part of Nature, and hath been the argument of the studies and decrees of the greatest and wisest of men. Lycurgus, the famous law-giver of the Lacedemonian Commonwealth, founded his laws in the education of youth from their very infancy : and whilst his laws were observed, the Commonwealth of Sparta continued the glory of Greece. And the reason the stability of laws, and Commonwealths, lies so much in the education of youth is this : the judgment and affection of persons in riper years are according to their sentiments in their youth... Certainly it is one of the noblest parts of Philosophy to cultivate children."

What he believes to be the basic principle in education is mentioned in his Preface :—" In the essay, the directions that I shall propose as to education are such as immediately flow from the consideration of

nature itself, in that all my endeavours are to assist it, for as in medicine 'nature is the best guide,' so in education, which is no other than moral medicine, if you take not nature along with you, if you go before it, or oppress it, your whole endeavour is lost. Observe therefore what faculties are strongest in the child, and employ and cherish them."

Of the attitude of the teacher towards his pupils he says that the master must make himself "not only master but playfellow and companion with his scholars."

"The essay on the education of children in the first rudiments of learning" which forms the first part of the book (thirty-two pages) discusses (1) the difficulties of education, which are said to consist in :—(*a*) the paucity of those with the proper qualifications for teaching, (*b*) bad methods, and (*c*) the indocility of children ; and (2) "my thoughts of the method of teaching the first rudiments of learning." First the child, when six years old, is to be taught "to read the English tongue, intelligibly to themselves and others"—being able to "pronounce his words tonically"—and know "the Grammar thereof." Then he is rightly prepared for, and should straightway begin to learn, Latin.

The manner of teaching Latin is set forth in detail, which appears in the "Narrative." One rule to be observed by the teacher is that the child shall know "that when he is weary, or perceived to be so, he may have leave to go to his more childish sports. No child is always disposed alike ; half or quarter of an hour indisposes at some time, more than half an hour at another."

All this, he claims, is based upon child-study, and not upon pure theorising. He says :—"That this essay is not a chimera or romantic fancy, but the product of a real philosophical attempt—if the improvement of the first years of children in their education may be accounted such—I shall evidence by the Narrative. And there is no disputing against an experiment. For my intention was, in my essay, not to draw an imaginary scheme of education, in laying the first rudiments of the Latin tongue —which will hold as well in Greek or Hebrew as in Latin, for the same years—and then to boast what feats it might do ; but having actually followed nature in all I could, and finding a proportionable success to my attempts, the experiment I have made is the testimony of the validity of the proposed method—which is the best way of philosophical instruction from matter of experiment to draw rules."

He further qualifies his claims in the preface, where he says :—"Though one swallow doth not make a summer, and what the felicity of one child, and the extraordinary affection of a father and a child may perform (which happily may outgo what can be expected from others, whose motives are not ordinarily the same) is not to be a measure to all ; yet, without doubt, what hath been done is what may be done ; neither do I so dote on the felicity of my child as to think he hath not his equal in nature ; but rather I believe that there are several hundreds, if not thousands, in this nation who may be improved to as much or more than he hath attained to, by the same care and method."

We now come to the child-study, which forms the second part of the book, and occupies twenty-five pages.

"A NARRATIVE *of what Knowledge* WILLIAM WOTTON, *when he was Six Years of Age, attained unto, upon the Improvement of those Rudiments mentioned in the foregoing Essay, in the* Latin, Greek, *and* Hebrew *Tongues.*

"That which I have to say of my son, William Wotton, who, August 12, last past, completed the sixth year of his age, is to give an account of my education of him, and what progress he made in learning by the time he completed those years. For the first three years and a half of his age, I had not the least thoughts of engaging him to learning above what other ordinary children are employed in ; and the rather because, till about that time, he was of as infirm and weak a state of body as the weakest children, that have any hopes of life or health for the future.

"Another ground of not entertaining

any extraordinary, or scarce probable, hopes of improving him to any excellency in learning was the experience I had of his elder brother, who, though of wit, fancy, and pregnancy sufficient for action or business—according to his years equal to most of his equals in age—yet was from his infancy as much disaffected to books and letters as any I ever met with; and when I used all methods, both of my own and other men's, of engaging him to his book, I saw nothing would take place; but if for some hours or days he could be overcome to attend to his book, the temperature of his body was such (for into nothing else can I resolve it) that a headache, or some bodily distemper, did follow upon it; and he being naturally subject to a very fiery and salt rheum, I suppose they so inflamed him when his fancy began to be engaged, and his blood heated, as that he found no content in reading or meditation, but that there was a necessity of breaking out those fiery particles by action and motion."

Why and How He Learned the Alphabet. "But I soon perceived another temper of body and mind in this child I am now speaking of; for as soon as that he attained to so much health and strength as to walk up and down, his first delights and recreations showed themselves in books and letters (or what had the show of books), as by his many questions and inquiries, with other circumstances, he made manifest. The which I mention that parents and those that intend to improve their children for learning betimes, should observe; for nature commonly shows itself by these genuine intimations of itself, which are without fraud or guilt.

"When my son began to be about three years and a half old, by which time he began to speak articulately, I then began to entertain some thoughts of his education, having more seriously considered of those indications of his *Indoles* [natural abilities] before mentioned. I observed, whenever he observed me with a book in my hand, the child would come to me, and showed more than ordinary desire after and delight in the book; and when he saw any letter greater than the other he would be very inquisitive what it was, and the signification of it; and oft-times would divert me to a very pleasant labour to satisfy his curiosity, and tell him what the letter was. Whereupon, not to quench his curiosity, but as far as I could to divert the trouble from myself, I sometimes chalked upon the walls, or writ in a very large character, the great letters, which I first acquainted him with; which were so taking with him as that, my parsonage-house joining the church-yard, where there are several wooden monuments inscribed with the names of the deceased in capital letters—when the air was so calm as that the wind offended not his eyes, which were very tender until he was near five years of age—he would set himself down by those monuments, and there would learn the capital letters, and would delight to tell me that he could tell me which was A, B, C upon them.

"Another thing that invited me to take special notice of him, in order to his education, was this: that he was of a more than ordinary memory. For besides those ordinary notices that his mother, or maid, would hint to him when they would be teaching him some remarkable verses of the Scriptures—which certainly are the most necessary seeds to be sown in children, in that they carry along with them the authority of an unknown and incomprehensible majesty—and withal would instruct him in the most easy parts of the sacred history, as to persons and things, he was so retentive of what was told him, both as to questions and answers, as that I began to conclude he was worth my care; and that I had far greater hopes of doing him good in his book than I could ever entertain of his brother.

"Which natural indication being taken of his towardliness, I desired his mother that she would begin the very first introduction into letters, and teach him the smaller letters; and that in a very short time I would free her from that care and pains, by taking him into my own tuition and instruction. He was under the care of his mother about three months, or up-

wards; but having an ague the greatest part of the while, he was not invited so oft to his book; as otherwise he had been, and oft-times when he offered himself he was not accepted."

How He Learned to Read. "Yet finding the ague favourable, and we having hopes it might leave him, I would walk with him as oft as my time and his health agreed, and, to make his mother's pains more easy, I would, without book, teach him to know and join a syllable, first of two letters, then of three; which in a short time became so familiar to him as that, when he came to know the small letters, his spelling was so easy to him as that, at the first sight, he knew how to divide words of two or three letters in a syllable; and the tediousness of spelling, the foundation of true pronunciation and spelling, was quite taken away from him.

"As soon as the ague was removed, and he could read a psalm or two orderly, whereby I perceived that in a great measure the tediousness of teaching letters, and spelling by book, was over—which I could not descend to, though to my own son—he being then some six weeks above four years old, I took him into my own care, and have now, this Michaelmas 1672, had him these two years. How we have spent our time together, I shall now relate."

Pupil Taught to Like His Teacher. "The first thing I endeavoured was to engage him wholly to delight in me and my company, and therefore was careful to remove what was distasteful to him. The English character, and little books, the child loved not, and therefore I taught him first the Roman or Italian character, as being more delightful to the eye, and consequently more taking with him; and because he delighted in great books, I taught him to read in Mr. Buck's large Cambridge Bible; so that, in a little time, studying to gratify his fancy both for books and place—for he never was so well pleased as when I took him into my study and taught him there—I found he was so perfect as that in a morning's exercise he would read a chapter, or half a one at the least; and within three months' time he had read over one of the Evangelists and several psalms; so that he now could read any ordinary periods at first sight throughout the Bible; and his great desire was to read somewhat harder."

His Self-Help. "And to observe the genius of the child, when he saw a long or hard word he would encourage himself thereto with a more than ordinary resolution, and glory as much in the conquest of it as a soldier when he hath won the field; thereupon he was curious, whatever book was before him, to search out the hardest names; so that within four months space he began to read with observation of points, with those pauses the sense requires, and such observation as showed he had an understanding of the sense of what he read, as far as can be conceived of his years."

His Leisure Wholly Free for Play. "In the meanwhile I began to see what I could instil in him of his accidence, in the ordinary road of teaching it; only I observed this method—which to-day I observe, and shall observe till strength of body and mind be fully adequate to a greater task—not to lay upon him that task in any measure which in Grammar Schools we call setting of lessons or parts; but only so long to challenge and charge his attention and observation as he is talking with me and I with him. So as that all the rest of his time [he may have] to give to his childish exercises, that when he plays he might not be afraid to play, as fearing he should not be prepared when he comes to me, whereupon he came more fresh to his book afterwards. When therefore I began his exercise in the accidence, I never put the book in his hand to learn ought, but endeavoured by question and answer, as short as might be, to instil the notions of his accidence; and when I came to the declensions I would repeat them so oft till he was able to repeat them after me."

Why Latin was Begun. "By this time, he having gotten that acquaintance with letters and syllables as to be able to read English very tolerably, intending nothing less than the course I took with him since,

this accident fell out. A friend of mine occasionally coming to my house, and bringing Bucer's Commentaries on the Gospel with him, and laying it down upon the table where we were talking, my child no sooner espied the book but, with all the might he had, he climbed up by the form to the table, and would needs be meddling with the book. His earnestness was such as that my friend was so far concerned in it as that, with more than ordinary earnestness, he said: 'What doth this child mean?'

"To whom I suddenly replied: 'He is able to read English, and for ought I know he may read Latin in that the characters are the same.'

"Whereupon we opened the book for him, and showed it him; and he read easily several monosyllables, and words of two syllables, and pronounced them as orderly as can be well supposed; so that I apprehended as little pains would acquaint him with the reading of Latin words as I had taken to teach him English; whereupon I told the child, and resolved with myself that if he was able to do so much he should suddenly be put to more."

Why and How an Experiment in Method was Made. "Henceforward I engaged him in the Latin tongue, and leaving off the accidence in that method that ordinarily children are trained up in, I immediately thought with myself to make an experiment whether children of his years might not be taught the Latin tongue as ordinarily children are taught the French and the Italian; and without the torture of grammar to make them, by reading a Latin book, to understand nouns and verbs, declensions and moods, and that without the vast circuit that ordinarily takes us three or four years as preparatory to read any Latin author; and to see whether use and custom in reading may not bring children into acquaintance with the sense and substance of these rules, sooner than to chew upon those rules themselves only.

"I willingly acknowledge that, to persons that are of years of discretion, to learn the substantial and fundamental elements of grammar, it is the readiest and certainest way to attain to a language; but whether children, by oftener observing the differences of nouns and verbs in reading, will not observe the notions of the elements of grammar more easily, by what I have observed in my son, makes the problem the easier with men."

Tasks must be Suited to the Powers and Present Knowledge of the Pupil. "Here, considering that capacity and memory are chiefly to be consulted in children, I considered what piece of Latin context was most proportionable to his perceptive faculty; and remembering that he had read the Gospel of St. John in English, I thought that Gospel in Latin would be the most taking with him to initiate him in the Latin tongue. What Plutarch, in the beginning of the life of Demosthenes, speaks concerning his learning the Greek tongue, the same gives us the method for the apprehending of any language, and I applied the rule to my child. For he remembering some small pieces of the sense in the English, he many times—although I was sure he never had met with that Latin word before—when we had done some considerable part of the verse, would give the English of it, the sense necessarily leading thereto.

"But that which more especially led me to that context in that Gospel was this, the syntax was most familiar and easy; and that which is most familiar is deep enough for such years; and that a *copia verborum* was thereby most easily obtained. Upon the whole, I resolved to initiate him in St. Jerome's translation of the Gospel of St. John, where there is little more than nouns and verbs, and the nominative case with the verb seldom distant one from another; so that if anything might be apprehended without any tediousness, I thought this book the meetest of all; and my design failed me not.

"Hereupon, when my child was not yet four years and a half old, I put him to read and taught him to construe the Gospel of St. John in Latin. His firm perception of syllables and his ability to read English, made this Latin soon familiar to

him; and the notices that remained with him, since his reading the story in English, made the Latin more facile to him. So that in a quarter of an hour's time, with construing two verses at the first three or four times, he was able to construe them after me, and to give the English of any word alone by itself in the two verses, upon the mention of any of the Latin words."

The Child to be Interested, kept in Good Health, and not Overworked. "When I saw these hopes, my great care lay within these bounds: to preserve a love and delight in his book, so as it might not be tedious to him; to preserve, above all, his health, that the intention of his mind might not draw his spirits so to his head, either from his stomach or his other limbs, as that either the nutrition or the animal faculties should be weakened, and consequently be hindered in the main design. Wherefore in the morning, two hours after he had read his English with me, which used to entertain him a quarter of an hour, the like time I spent in his Latin, and so in the afternoon. All the rest of the day I left to his own dispose, and charged him not to take up his thoughts with anything of his book, only that he should mind his book whilst he was with me."

Why and How the Teacher should Gain the Child's Love. "By this time I began to consider that it was my great business to oblige him to the utmost, to delight in my company above any else; and that nothing ought to be omitted that was consistent with good manners (which are only perfection and varnish of all intellectual attainments) that might further engage him to me, and his book. Accordingly his love and affection were drawn to me; and my person and company was more desirable to him than any others; and he expected no where more pleasant entertainment than with me, so as his fancy was wholly captivated by me, which I improved for his book."

"For if gentlemen, whose pleasure lies in their dogs, make it their business to oblige those irrational creatures to attend and follow them; by how much my pleasures and scope were higher in the obligements of my child, by so much I thought that it was worth more care to engage him by all possible and honest means. Wherefore, not only by all encouraging words whilst he was about his book, but by letting him understand that nothing could distaste me, but what showed carelessness and neglect of attention on his part; as also, after the discharge of his duty, by some childish rewards and entertainments of him, with some exercises befitting his years, to which, for some minutes, I thought meet to be employed with him; I won him wholly to myself.

"And though these observations may seem trifling and unworthy of public notice, yet seeing *parvum parva decent* (little things suit little persons), and though they are *parvæ res* (small things), yet not *parva initia* (small beginnings), I suppose they are not to be neglected; and especially if you would train up noble persons, or those who are of more than ordinary hopes; And seeing everyone's own child is as great to him as the greatest; I have so entertained my own hitherto as that if the noblest person of his years was committed to me, I could not with more advantages to his progress accommodate myself to him.

(*To be continued*).

Practical Work for Study Circles.

Wherever possible, a study circle should be an investigating circle, or its work may result in much less satisfaction to the students and far less good to the child-study side of practical education. With a view to the guidance and help of those who might wish to proceed on these lines the following outlines of studies are published. They were originally drawn up by Professor Earl Barnes and others, and are excellently suited for beginners and those without much experience in child-study.

I. How Children Draw Objects Placed Before Them.

The studies by Prof. Barnes and Mrs.

Louise Maitland on children's drawings, and a study of the articles cited below, suggested the following tests for finding out how children draw objects placed before them.

A hat-pin stuck horizontally through an apple and turned at an angle of forty-five degrees to the observer was used as one test. A book, lying with top horizontal, its back and one end in sight, turned forty-five degrees to the observer, made a second test.

In the schools visited these were placed on a table in the library rooms. The apple, a fair specimen varying decidedly from a sphere, was placed eye up and stem out of sight, eighteen inches from the table edge. Correctly drawn, the eye would be below the contour and the pin would slant about twenty degrees, partly crossing the apple, in part hidden by it. Different books were used; all had decorated covers with conventional and semi-pictorial designs. The one to be drawn was placed two feet or more from the table edge.

When all was ready a handkerchief was thrown over the objects and the pupil admitted. When she was seated it was explained that she was to draw as well as she could the object under the handkerchief.

The handkerchief was removed from the apple and the drawing made. Then the book was uncovered and drawn. This use of the handkerchief served to concentrate attention at the right time and allowed but one view.

Extreme care was taken to give no hint as to choice of fact or treatment either by word or gesture. If the pin was omitted it was asked for, but that seldom happened.

If the drawings looked strange, explanations were requested; and once it was found that what looked like a pin was a stem. Many asked, "Shall I draw the book that way?" or "Shall I put that (pointing to name or decoration) on?" "Do as you like," was a non-committal answer often used.

Each paper, when signed by name, age and grade of pupil, was quickly concealed to insure that the work should be independent.

Thus far two hundred and forty-seven have been tested and the results tabulated.

The apple as follows: Symbolism, seven grades; slant of pin, three grades; penetration of pin, three grades; perspective of pin, three grades; perspective of eye, three grades.

The book: Position; grasp of form; surface markings. The various combinations of these making twelve grades.

The most obvious test in perspective is the penetration of the pin. At six: all tested, ten drew the pin clear across the apple; at nine: eight across, seven pin stopped on the edge, four drew as it appeared; at fourteen and above: none across, fourteen on the edge, twenty-two drew as it appeared.

This is an example of their success in other respects, although the best drawings of the book did not equal the best of the apple.

Facts which seem to be indicated are:—

1. As children pass from six to fifteen their power of drawing objects as they appear increases, whether they have had much training in drawing from objects or not.

2. At about the ages of six to nine children draw objects before them quite symbolically with little regard to perspective. At this age children either do not distinguish what is seen from what is inferred (pin in the apple), and so draw both, or the limitations of pictorial drawing (many show five sides of a book) are too severe for them.

3. There is a time in children's development when they feel a desire to draw in perspective and are dissatisfied with an incorrect drawing. That is probably the time when instruction in the subject should begin.

Problems for Solution.

1. Will all children draw as the above two hundred and forty-seven did?

2. How would similar tests be affected with children of different ages if they were instructed on the objects before the test?

3. Is there any period during which children will draw familiar objects such as

hats, shoes, trees, turnips, apples, or flowers, as well without a model as with one?

4. What use can children make of drawing in nature-study, geography, history, number, and form?

The solution of these problems by teachers as applied to their own pupils will greatly supplement their power in teaching the subject.

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Representative Expression in Nature Study. By Wilbur S. Jackman. Educational Review, Oct., 1895.

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II. Children's Sense of Money.

The aim of this study is to determine children's attitude toward money and their ability to understand its meaning at different stages of their development. How far can children of different ages measure the relative values of two things through translating them both into some third measure of value? How far can they give up something of immediate concrete personal value for the sake of money or credit which they can hope afterward to turn back into something desired for its own sake? How far are they interested in storing up their possessions and acquisitions in some abstract form—money, or a bank—as a reserve fund for the future?

Or, to put it differently: we want to know what the feeling of children is toward money; and at what time, in what manner, and how far we can wisely assist children to relate themselves to their world through seeing the relative values of things in terms of money.

These questions take immediate hold on our practical work at every point, and raise a variety of questions concerning the value of thrift as an educational agent and its possible reactions in moral and aesthetic directions.

As a preliminary to this study, it will help us if interested teachers and others will give us their own reminiscences, written as truly and as concretely as possible, concerning their own childish experiences with money or things used as money. The following phrases may suggest lines of experience, but any additional information on other points pertaining to the subject will be greatly appreciated.

Personal Reminiscence.

Ideas and desires about money: earliest memories of money; where kept; the way you felt about it; its appearance; the value you set upon it; the relation between money and things; your ideas of value expressed in money; absurd values attached to valueless things; play-money—pins, buttons, paper, tin, etc.

The way you got money as a child: regular allowance; accidental gifts; pay for doing domestic tasks, running errands, studying your lessons, etc.; selling things, as old iron, rags, berries; finding money.

Saving money: storing in toy banks; in real banks; for buying some important thing; merely to accumulate; incentives offered you to make you save money.

The way you spent money: all at once or in separate sums: for useful things, for things to eat, for missionary boxes, for Sunday school collections, for the poor; attitude towards giving to charities; toward spending money for useful things.

Superstitions about money: good luck; finding money; spending money on New Year's Day; etc.

Financial ambitions: dreams of being

rich; wanting to be independent; fancies about finding money; schemes for suddenly getting rich.

School Test.

Then as a composition exercise in your school you could have your pupils write a composition in which the following questions are answered:—

1. Have you a regular allowance? If not, would you like to have one?

2. If you could have an allowance of fifty cents a week to do with just as you liked, what would you do with it?

3. Do you ever earn any money? How?

4. About how much is sugar worth a pound? How much are eggs worth a dozen? How much can a man earn a day shovelling coal?

5. If you had a thousand dollars of your own, what would you do with it?

Pedagogical Questions Involved in the Study.

Ought children to be paid for domestic services?

Ought children to have an allowance?

Should children save money for the sake of accumulating?

Should they save to get some important thing, as a bicycle?

How far can a child at any particular age understand money values?

Should work in arithmetic and other branches be adjusted to children's sense of money values?

Should children be early given a sense of the economic value of their clothes, books, and playthings?

Should children be encouraged to give money to organisations removed from their own immediate life, such as missionary societies?

III. Inference and Reasoning.

In October, 1893, the following test on inference was sent out from the Educational Department of the University to the schools of Santa Rosa, Napa, Santa Paula, and Oakland:—

"If you were shipwrecked on an island in the middle of the sea, and you found in one corner of the island an old house of logs, and part of an old wooden boat, with broken arrows in the bottom of it, what would these things tell you?"

Papers were sent in from 2,013 children, and the results were collated by Mary Sheldon Barnes under the following rubrics: number of inferences made by each child; inferences as to persons formerly on the island; as to the house; the boat; the arrows; the reason for deserting the island; the time involved; and imaginary details, made up by the child. The generalizations reached were examined in regard to the following points:—

1. As to the number of inferences made. 2. As to the number of legitimate inferences made. 3. As to the number of critical inferences made. 4. As to the number of imaginative inferences made.

(*To be continued*).

Suggestions for Study and Practice.

"**Science Develops only when Problems are Understood.**—The business of the high-school course of science consists not merely in giving the solution of problems; it consists rather in stimulating the student to see that there are problems to be solved. The difficulty with most of the science text-books and with much of the laboratory work is that the effort of the teacher is devoted to giving the students results. Science in its completed form is a statement of solutions of problems. Science in its personal form in which the student needs to acquire it consists in the stating of problems in such a way as to give the student an appreciation of the reason why anybody should try to work at the subject. There is nothing more fatal to mental life than the learning of solutions of problems which are wholly artificial to the student and not appreciated by him as having any significance either for himself or society. On the other hand, if one can get a student to see that the facts of life ought to arouse his curiosity, a very large part of the difficulty in science teaching disappears."—*Prof. C. H. Judd,* in his book on *Psychology of High-School Subjects.*

"The Financial Training of Children.—In general it is only the common people who have had much experience in saving and spending money, who spend it wisely, and many of these have paid a high price for their knowledge. If carefully planned, financial training here given, the number spending wisely would doubtless be greatly increased... When we thus emphasize the importance of children's receiving financial training it is not to be inferred that formal lessons on the subject must be given them in home or school. On the contrary, it is probably better that little or no formal teaching regarding money shall be given. Experience in actually earning and spending money is the basis of all real financial training. Talking to the child about money will educate him only as far as it helps him to understand his actual experiences, and those that he can picture clearly in imagination. The problem of financial training is largely one of giving opportunities for educative experiences with money."—*Prof. E. A. Kirkpatrick,* in his book on *The Use of Money.*

Home Training and the Making of Criminals.—"There may seem to be no relation between the little child who throws himself on the floor in a temper because he cannot have what he wishes and the man who is a drunkard or a murderer or a seducer. The fact is, however, that the latter are a legitimate and logical development from the child who has never been taught self-control. And this is a quality which the home alone can develop. ...When some terrible crime is committed the real cause too often lies in a parent's neglect to cultivate from childhood the power of self-control. Without this early training there is no home to which such a sorrow may not come. It is a matter that concerns every parent and every family... There can be no doubt that crime will not decrease until parents learn that the fundamental work of the home lies in so inculcating in their children the laws of life that these will become an integral part of character. This cannot be done without the careful study and practise of the methods which are effective, and with at the same time avoidance of those which are fatal to real strength and growth."—*Mrs. Hannah Kent Schoff,* in her book on *The Wayward Child.*

What Sort of Poetry is Learned Most Quickly, and Why.—"A poem or piece of prose which is *narrative* in character is, *ceteris paribus*, learnt more rapidly by most children than one which is largely *descriptive.* One of the reasons for this is that the former kind of piece arouses their interest in action, this interest being excited by things imagined as well as by things which are actually done—often, indeed, more by things imagined, since much more and much greater activity can be indulged in by way of imagination than in the course of most of our humdrum lives. But another reason for the preference for narrative is that it contains more thought-links than mere description. Such connections as we imply when we speak of cause and effect and of succession are the very groundwork of all stories. When, therefore, the child listens to a story suited to his age, there is brought out from the store-rooms of his mind a set of ideational machinery which gets to work at once on the material provided by the story, serving up to consciousness a smooth succession of pleasing phrases."—*B. Dumville, M.A.,* in his book on *Teaching, its Nature and Varieties.*

The School Drinking Cup.—"The common drinking cup is a well-known source of disease, but there are schools where the pail and long-handled dipper still prevail [in U.S.A.]. The individual cup is not greatly better, for it is seldom perfectly clean. The best way would be for the children to have light tin cups which could be carried back and forth easily, and which could take frequent journeys home in addition to frequent school baths. Too great drinking at school should be discouraged, till it can be done with perfect safety. The drinking fountain solves the difficulty for schools where there is running water, but the problem of the rural school is yet unsolved. The paper drinking cups are still too expensive to be used generally in such

places, though children may be taught to fold cups for themselves. Care should be taken that fingers and papers are clean." —*Lilian I. Lincoln*, in her book on *Every-day Pedagogy*.

How to Make a Paper Drinking Cup.—Fold a piece of paper six or eight inches square on its diagonal; fold each corner of the base of the triangle thus formed to the opposite side of the triangle; fold the apex corner of the triangle to the front of the other folds and along the top of them. The folding needs to be done very exactly, to prevent leakages at the corners.

The Essential Need of Quiet for a School.—"Obersteiner showed that noises and all causes which tend to distract the attention lengthen the time of physiological reaction. One example will suffice to show how much better our brain functions in silence. Obersteiner had an organ placed in the room, where, by means of Hipp's chronometer, he was measuring reaction time. When there was silence the subject of the experiment took one hundred thousanths of a second before, with his right hand, he gave a sign of having felt a touch on his left; but when the organ was played the time was prolonged to one hundred and forty, or even one hundred and forty-four, thousandths of a second. This retardation took place in spite of the greater intensity of the attention, and whenever the music ceased the time of physiological reaction became as before."—*Prof. A. Mosso*, in his book on *Fatigue* (translation by M. and W. B. Drummond).

A New Type of School. At Gary, Indiana, U.S.A., an unusual type of school is being conducted. It includes kindergarten, elementary, and high school departments, and its pupils range from four to sixteen years of age. All the practical work of the establishment is, as far as possible, done by the pupils, who receive payment therefor according to the amount of work they do. There are commercial, turning, painting, sewing, boiler room, laundry, blacksmith, foundry, machine, cabinet, plumbing, carpenter, cobbling, printing, sheet-metal, and pottery, shops, in which the work is prepared for or done. All the usual school subjects and activities are amply provided for both as to teachers and equipment.

The general aim and method of the school may be gathered from the following extract from a report on it by Dr. Joseph S. Taylor, District Superintendent of Schools, New York City. "This school system is, in my judgment, the most remarkable educational experiment the world has ever seen since Pestalozzi... It organises the matter and method of instruction so as to make the fullest recognition of the principles of interest and apperception. Constructive activity is the very life of the school...The children make objects used by themselves in the school. The academic work is so related to shop, laboratory, studio, and recreation that it seems worth while here and now. Finally, the sudden and imperious demand for vocational training in America is met at Gary, not by special schools and separate equipment, but normally by incorporating such training as a part of the daily programme of the school...Gary has a programme [of vocational training] from the fifth year up through the high school... [It] has twenty per cent. more students in its evening continuation schools than in the day schools...[Its] schools are operated from eight-thirty to five, and at night from seven to nine six days a week. They are open on Sunday for the use of private organisations engaged in social service...

"Gary keeps all the children usefully and happily employed in work or play, eight hours a day. At five o'clock they go home, all the demand for exercise and play having been met, glad to eat supper and go to bed; and thus one finds very few children upon the streets at night...Gary has made provision for religious instruction by permitting the Churches to take the children out of school during stated hours for religious teaching...The children at Gary run or skip, talk or whistle in the halls and other sacred precincts of the school exactly as they would in their own homes. They feel under no constraint whatever...This conduct of the children is just what the school tries to stimulate:

naturalness, self-control, initiative...I found no scratched or carved desks, no defaced walls or toilets, no spirit of wanton waste or destruction in the use of school supplies."—*Educational Review* (U.S.A.), May, 1915.

Child-Study Association and the Constituent Societies.

The London Society.—In order that members may have opportunity of free and thorough discussion on subjects appertaining to child-study, a series of Reading Circles is being arranged. One (in the South-East district) is already in existence; others are in the process of formation. Members who are desirous of joining such a circle, if formed in their own district, or who would help in the promotion of a circle, are asked to communicate with Miss Norah March, Hon. Secretary, "Reading Circle" Sub-Committee, The Child-Study Society, London, 90, Buckingham Palace Road, S.W.

The lecture on *The Girl Worker,* which has had to be postponed owing to the unfortunate illness of Miss Adler, will, it is hoped, be given at a later date.

Notices and News.

The National Special Schools Union held its seventh biennial Conference, at the Guildhall, London, on October 15th and 16th. It was a very well attended and thoroughly successful Conference. The following papers were read, and afterwards keenly discussed:—"Teaching in Institutes for Defectives," by Sir Wm. Patrick Byrne, K.C.V.O., C.B.; "The Education of the Mentally Defective," by J. T. Legge, B.A. (Director of Education, Liverpool); "The Prevention of Tuberculosis in Childhood," by Arthur Latham, M.D., F.R.C.P.; "The Problem of the Physically Defective," by R. C. Elmslie, F.R.C.S. (Orthopædic Surgeon, St. Bartholomew's Hospital); "Special School Work in Bradford," by A. C. Coffin, B.A. (Director of Education, Bradford); "Feeble-mindedness in its Racial Aspects," by Major Leonard Darwin; and "The Practical Side of Special School Work," by J. W. Bunn (Headmaster of the Cloudesley L.C.C. School for Elder Mentally Defective Boys).

All the papers will be published in the next two numbers of "The Special Schools Quarterly," the official journal of the Union (Morris and Yeaman, 44, Lloyd Street, Manchester, price 2d.).

Articles from "El Monitor de la Educación Común" are translated for "Child-Study" by permission of the authorities of the Consejo Nacional de Educación, Buenos Aires. We are indebted to Prof. C. R. Chapple, who was formerly the principal of a normal college in Buenos Aires, for acting as translator.

The School Leaving Age in Pennsylvania.—"Enforcements of the new compulsory education law passed by the last session of the Pennsylvania legislature with regard to children between fourteen and sixteen years of age holding working certificates, may make it necessary for twelve thousand of these workers to return to full time in the Philadelphia schools. The new law requires, after January 1st, 1916, that all children must have completed the sixth grade before leaving school. It is said the Board of Education will recall all of the twenty thousand working certificates now held by children under sixteen years" ("School and Society," U.S.A., September 18th, 1915).

Parent-Teachers' Association.—"In every one of the fifty-four grammar schools of Portland, Ore., there is a Parent-Teachers' Association. Men as well as women are members of these associations, and three have business men as presidents. School excursions form an important feature of the work. Brickyards, lumber yards, and chair factories are visited by the pupils. A committee of sixteen men have special charge of the work, one of whom accompanies the children on every trip" ("The American Teacher," September, 1915).

Reviews.

Teaching: Its Nature and Varieties. By B. Dumville, M.A., F.C.P. Pp. vii., 446. W. B. Clive. Price 4s. 6d.

Mr. Dumville says that his special purpose is not "to deal specifically with the teaching of various subjects. It is rather [to give] an explanation of the processes involved in all forms of instruction, whatever the various subjects may be." By education, so far as the "elementary school period" is concerned, he means "the general development of the child on all the good sides of his nature" (p. 19).

The author expounds his views under the headings:—A general view of education, and of teaching; teaching as telling, and causing to learn; the teaching of skill, of general truths, and of reasoning; inspirational teaching (literature, history, etc.). He has the happy knack of writing as an interesting speaker talks, and makes his points with lucidity and precision. His educational outlook might be described as liberal-conservative; and it would be hard to find a better book for the teachers who were schooled and trained under the old order of things, but desire to know and make use of the new order.

Psychology of High-School Subjects. By Charles Hubbard Judd (Professor of Education, University of Chicago). Pp. ix., 515. Ginn and Co. Price 6s. net.

This is a book written from the point of view that applied psychology is of most use to the practical teacher, and most likely to advance, when it takes "up one after another the subjects of instruction and inquires what are the mental reactions typical in each." This should be done by

the teachers themselves, acting in conjunction with other teachers and psychologists, and always in relation to " a comprehensive study of the psychology of all fields."

An idea of the method of treatment is suggested by a summary of the conclusions of the inquiry into the teaching of mathematics, which are, in brief :—in arithmetic, algebra, and geometry, there are some forms of mental activity in each which are not included in the others ; all mathematics represent abstract forms of reasoning ; there is no general " carry over " in them ; they all are closely related to the direct perceptual experience of space ; both algebra and geometry contain simple and complex principles ; and, the main value of mathematics lies in the great economy of mental energy which they permit.

Other subjects treated are : languages, manual skill, science, the fine arts, history, generalised experience, teaching students to study, and the general problems of secondary education.

The book forms an important and valuable contribution to the study of the teaching of the subjects considered, and all who are interested in such will find it stimulating and helpful.

Report of the Minister of Education, Province of Ontario, for the year 1914. Pp. xxv. 766. L. K. Cameron, Toronto.

This report gives a very interesting view of the educational laws, methods, and results in the kindergarten, elementary, and secondary schools, collegiate institutes and high schools, continuation and night schools, teachers' institutes, etc., in Ontario. The numerous and detailed syllabuses of work give a very clear idea of the educational aims and ideals in the province. It is interesting to notice that the official regulations require that the school grounds shall " be beautified with trees, shrubs, vines, flowers, lawns, and suitable walks." So far as one can judge from the report, there is an enlightened and generous zeal for education in Ontario, and much good work is being done there.

A Study of One Hundred and Fifty Delinquent Boys. By J. Harold Williams, Research Fellow under the Buckel Foundation. Pp. 15. Bulletin No. 1, February, 1915. Stanford University, California (U.S.A.).

This is an interesting and instructive report on a school for " delinquent and dependent boys." It includes " (1) a study of the administrative needs of the institution ; (2) the determination of the physical condition of the inmates, from the standpoint of medical inspection ; (3) a study of the needs with reference to educational reorganization ; and (4) the determination of the intelligence level of each of the boys." The one hundred and fifty boys were classified as :—definitely feeble-minded, 28 per cent. ; border-line, 25 per cent. ; dull normal, 22 per cent ; and normal or above, 25 per cent.

Problems About War for Classes in Arithmetic. By David Eugene Smith, Ph.D., LL.D. Pp. 23. Carnegie Endowment for International Peace, Washington, D.C. (U.S.A.)

This is a surprising, not to say amazing, publication, which takes us back to the beginning of last century in England, when religious people thought that the best use to make of the teaching of arithmetic was to base every sum upon Biblical facts, and so further religious education. Dr. Smith has adopted the same principle, on behalf of the Carnegie Endowment for International Peace, for the furtherance of pacifist ideas. The reviewer, though a pacifist, thinks that nothing could be more disastrous to the teaching of such ideas (and arithmetic) than setting problems which must necessarily be full of *suppressio veri* and *suggestio falsi.* Moreover, such matters are not the affair of children, for they have neither the experience nor capacity to understand or judge in them ; and their business is to be children, not mimic politicians.

Fatigue. By A. Mosso, Professor of Physiology in the University of Turin. Translated by Margaret Drummond, M.A., and W. B. Drummond, M.B., C.M., F.R.C.P.E. Pp. xiv., 334. George Allen and Unwin, Ltd. Price 2s. 6d. net.

This is not only a standard book on the subject of fatigue, but is also probably one of the best and most attractive expositions of the scientific method as pursued by a great scientist. Science has been well defined as being merely organised common sense, or, as Huxley said, " perfected common sense." In this book Professor Mosso talks to us in a conversational, anecdotal, and intimate way, while introducing us to the understanding of profound truths. Teachers need such books as these, straight from the greatest authorities, to set them on the road to the highest levels of educational science. Many an unconscious wrong and cruelty in schools would be righted if teachers would study this book.

The subject is dealt with under the following headings :—the migration of birds, the movements of animals ; the origin of the energy of the muscles and of the brain ; the general and special characteristics of fatigue ; the substances produced in fatigue ; muscular contracture and rigidity ; the law of exhaustion ; attention and physical conditions ; intellectual fatigue ; lectures and examinations ; methods of intellectual work ; over-pressure.

The translators say, " We only hope that readers may find the translation as interesitng as we have found the original." If the original has greater fluency, simplicity, charm, and polish than the translation, readers of the Italian are indeed to be envied.

Publications Received.—*The Journal of Education ; The Educational Times ; Secondary Education ; The London Teacher ; Parents' Review ; Child-Life* (London) ; *Child-Life* (U.S.A.) ; *The Training School Bulletin* (U.S.A.) ; *The American Teacher* (U.S.A.) ; *Educational Review* (U.S.A.) ; *School and Society* (U.S.A.) ; *School and Life* (Petrograd) ; *El Monitor de la Educación Común* (Buenos Aires).

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The Child's Sense of Number

(Some Further Notes.)

By Mrs. Alys Lucas.

Much investigation has yet to be carried out on the power, in quite small children, of judging number. The children chiefly available to trained psychologists are those of school age, in whom the number sense is well advanced. Parents in the home must work here in touch with psychologists in collecting evidence of the early development of this power.

This is not easy work for the untrained observer, because while experimenting it is very hard to isolate this power from other powers. Clearly we must concentrate on this one power alone, and not confuse our results with evidence on other faculties. Some recent workers on this subject have not been careful enough on this point, and the successful performance of their tests involves the ideas of pattern, mimicry, duration and colour.

When I started my work on the power of judging number in small children I looked on it as one definite faculty, and I proceeded to gather information about its development.

A Child's Two Methods in Number Work. In my previous paper on "The Child's Sense of Number" (*Child-Study*, Feb., 1914), I pointed out that my boy A., when three years and eight months old, had two distinct ways of dealing with numbers: he either recognised at a glance the number in a group—up to four—or he would enumerate the objects one by one, touching each with his finger, if there were more than four. This difference was noticeable in ordinary life. If asked how many cups are on the table (provided the number is over four) he would answer, "I'll go and see," which means he would go and touch each cup, counting one, two, etc. When A. was four years three months he said to me, "I do not count little numbers, I see them." Four was still his limit for seeing, but since then, at four years nine months, it has risen to seven.

Although I never mentioned number names, A. did so with numbers above four. He would take the beans one by one out of the box, counting out loud, then he would find his lot exhausted when he got to a given number, say eight. Now all he really did was to handle the beans he was to count from in the same fashion, putting them into a box and stopping when he reached eight. He dealt several times successfully with numbers one or two above the limit of number names he knew, but at the time he said "Ten and one more," and so reproduced it correctly.

The way A. dealt with numbers in my experiments first showed me that the power of judging number was not one isolated faculty as I had at first thought. Clearly A. used two clear and distinct methods in estimating these numbers, one for the low numbers up to four, the other for the numbers above. The numbers up to four he could estimate at a glance, without counting. With numbers above four he enumerated, *i.e.*, he passed from one unit to another, counting one, two, three, etc. I decided that I must try and investigate only one of these faculties at a time, as my results would otherwise be confused and useless. The enumerating faculty struck me as of less importance. The child depends on his knowledge of our adult's nomenclature and on verbal memory; it is much on the same footing as

his knowledge of the sequence of words in a nursery rhyme.

The Glancing Method. I directed therefore all my attention to the "glancing" method of number judgment. I had already got clear evidence that this power was accurate for A. up to four, but there appeared to me to be an extension of this power beyond the limits of the few numbers that can be estimated with accuracy. This further power is the one we possess of judging large numbers, without counting, with more or less of accuracy. My next experiments I designed to give me some information on this power in a small child.

I prepared cards dotted over irregularly with small circles of red paper; one card held five of these, another ten, and so on in geometrical scale up to eighty. I then showed A. one of these cards, and asked him to indicate to me a similar number from piles of match sticks which were placed in irregular heaps corresponding in number to the series of cards. After several weeks of observation on this I altered my medium to haricot beans and small wire curtain rings threaded on wire. I chose objects so widely different in shape and appearance in order that no comparison should be possible between the relative extents of the two objects.

I went on for some months, believing these experiments to be giving me the results I wanted. It was noticeable after a while that the lowest and highest number were the easiest to select. Numbers were shown altogether. Of the five he got eight per cent. wrong; of ten, thirty-five per cent; of twenty, forty-five per cent.; of forty, twenty and three-quarters per cent.; of eighty, all right. This led me to suspect that he was not judging after all by number but by the comparative position of each group of objects in its own series. Thus the smallest pile of sticks corresponds with the smallest bunch of rings, the nearly largest with the nearly largest, and so on.

To test my suspicions I substituted for one series of numbered objects a series of coloured squares painted on white paper, the areas of the squares bearing the same relation to each other as the number groups had borne.

The figure in the first column below gives the number of rings shown, the following figures give in the upper line the number of matches indicated, and in the lower line the relative size of square indicated. The numbers given are the six consecutive ones chosen at random.

5	5	5	5	5	5	m.
	5	5	10	5	5	s.
10	10	10	10	5	10	m.
	10	10	5	10	10	s.
20	20	10	20	20	40	m.
	20	40	20	20	20	s
40	40	40	20	80	40	m.
	40	20	40	40	20	s.
80	80	80	80	80	80	m.
	80	80	80	80	80	s.

The relative correctness of the last numbers is very noticeable. The similarity between the two sets justified my suspicion that the determining factor was not purely number, and my belief was strengthened that A. was judging by the position which a group held in the series and not by the number of objects that composed it.

This presence of a standard as a help to estimating obviously has a great bearing on our judgment of number in everyday life. Perhaps an illustration may make this point clearer. A lecturer on coming into his lecture-room can say with comparative certainty whether his audience numbers about twenty or eighty, but this is no true test of his capacity to estimate numbers, for in all likelihood he is familiar with this same room full, with perhaps a hundred people in it, and he is judging by the relation the number before him holds to the known standard in his mind. On the other hand if this man passes a field with which he is unfamiliar and he sees a herd of sheep in it and estimates their number, he will be truly dealing with unrelated number.

Training in Approximation. I therefore tried to invent a method which would eliminate this new error of a stan-

dard to judge by. I showed A. one of the groups of rings I had used in the above experiments and asked him to place beside it an approximate number of loose beans which he could take from a box near by. There was no attempt at enumerating. I show the results below. (*a*) Number of rings shown, (*b*) number of times shown, (*c*) mean error per cent. :—

a	*b*	*c*
5	18	130%
10	19	100%
20	20	45%
40	20	36%
80	20	39%

This method did not work well: he got into the habit of saying: "The smallest lot of rings, that is one hand full." "The biggest, that's two hands very full." The handful for five was a very bad estimate, and accounts for the large average error for that number.

I then adopted a different plan, and one which seems in every way more satisfactory. I drilled sixty holes at hazard through a bit of wood about six inches by six inches, and then I cut off several hundred lengths of round rod that fitted easily into the holes. The way I use it is this. I fill some of the holes with pegs, and I say, "Here, A., is a house I am building, but I have no screws, do fetch me enough to fit these empty holes. Then he fetches what he thinks is a right number of pegs, and he gets quite excited fitting them into the holes and seeing if he has some pegs over or some holes left empty.

The results obtained up to now are as follows. (*a*) Number of holes left empty, (*b*) number of times shown, (*c*) mean error per cent. :—

a	*b*	*c*
3	5	0%
4	5	0%
5	5	0%
7	8	22%
10	7	45%
14	7	21%
20	6	85%

As will be seen at once, there is a change in the results as soon as the number five is exceeded. Surely here we have again an indication of the two methods of dealing with numbers; the first numbers he glanced at with sure and accurate judgment, after that he estimated approximately. I do not attempt to draw any conclusions from these results, for I have not nearly enough data yet available.

For the present I am content to have described the process of trial and error by which the method has been reached. I trust that other untrained workers may be stimulated to join in the inquiry, and may be saved from the preliminary errors through which I have passed.

Rev. Henry Wotton. II.

A Pioneer in Child-Study.

By H. Holman, M.A.

The Pupil's Health and Discipline. "Next to his love and delight in me and in his book, my great care was to observe his health, and in order thereunto, that for his years he might enjoy sleep to the full. For it being observed by all naturalists that children need more than ordinary sleep, they are to be allowed it; in that if their brains should be too much heated, their fancies would soon, by firing of them, be dulled and dried up; and, for the same reason, care ought to be taken that children be not unnecessarily provoked, so as to make them stubborn, or quarrelsome, or careless of all that otherwise should be regarded by them. Whereas mild and meek speech makes them more complaisant to all that converse with them, and more apprehensive and retentive of what is suggested to them.

"And it hath been observed by many observant persons, that where school severities profit one, they spoil ten; but in this case the prudence of the tutor is principally required. Wherefore let this be observed all along, that the child do as sensibly understand the good-will and acceptance of his tutor when and where he doth well, as he doth understand his tutor's displeasure upon his negligence, which to such years should be the whole compass of severity."

Why and How Greek was begun. "When my child had construed two chapters and upwards in St. John's Gospel, which he effected within less than two months: supposing that variety might somewhat take off the tediousness of one language, I began to show him the Greek Testament, and asked him whether he would learn in that, as well as he had done in the Latin. And observing that St. John's Gospel in Greek was the easiest part of the Greek Testament, in that the periods are little, and that he had double advantage to read the Greek, to what he had to learn the Latin; in that by learning the English and Latin of the gospel, his fancy and judgment would be greater to the retaining the Greek words, I immediately made trial, whether his fancy and appreciation would close therewith."

From the Known to the Unknown. "And in training him up to the Greek tongue I did not so much as begin with the Greek alphabet, for all together might confound him; but by the words as they came, showed him the letters and gave him only the force or *Potestas* [power] of them, under the names of the English alphabet; and where the letters were double, as *theta, phi, chi,* I interpreted them to my child as *th, ph, ch*, and so troubled him not with the names of *Alpha,* or *Beta,* but told him they were a, b, c in Greek. And for the accents, I taught him to pronounce them according to the accents as we do our English or Latin, and that the marks of them were only to show him where to raise his voice; and by the time I had read over with him one chapter he began to perceive, by the rise and cadency of the syllables in the words, what the use of the accents was, and in little time, without the names of grave, acute, or circumflex, he would express the full force of them.

"I also observed the same in construing Greek which I had done in Latin, to give him the distinct signification of every word, and caused him to render each word by itself, which, as before I hinted, delivered him from confusion, and mistaking the adjective for the substantive; and thus laid a sure foundation for the Greek authors so tedious to those of riper years, in that they are necessitated in every line to turn to their dictionary, and sometimes oftener; whereas taking the advantage of the improvement of a child's memory, which is much stronger than a man's to retain simple themes and notions—as we may see in every child that within two months after it comes to speak, gets the names of all things it converses with—the child thereby lays up that stock of words, as that, according to the growth of common sense and judgment, in power, a sense in reading according to the scope of what we read. As we may perceive in ourselves, who, when we have any smattering in the French tongue, from its agreement with the Latin, though we know little or nothing of the French grammar, yet can easily frame some tolerable sense of the author; so eminently conducing to knowledge is the furniture of a *copia verborum.*"

Correlation. "Amidst these cares, I took care also not to clog or torture his memory with the Latin translation when he was to construe the Greek, but caused him to turn it immediately into English, as in common schools youth are taught to put the Greek into Latin; yet so that he being now initiated into the Greek and Latin, when, upon a second reading of the Greek, he had forgot the English, I would give it him in Latin to refresh both, and when he read anything in the Latin Testament, and had forgot the English of it, I would, where he had read the same verse or chapter in Greek, render the word in Greek; so that whenever he read one language he had some exercise in both, and one language helped and strengthened the other."

Lessons to be as Play, and Stopped when the Child is Weary. "But above all, both in my teaching him Greek and Latin, from the time I began with him, as I never gave him any task while he was from me, to get against the time he should come to me; so whilst we were together, I always encouraged him to tell me freely and openly when he was weary, and would have done, and I always gratified him in his request; considering that children by

no means are to be alienated from their book, but that it is so to be managed as to be made their greatest pleasure. And therefore, whereas others bribe children to their book, by play-days and hours, my endeavour hath been to make my child's book his *ludus* [game, pastime, play], and his recreation; and that when I would express my greatest displeasure to him, I would express it no otherwise than thus, to tell him I would teach him no longer; that he should play up and down in the streets as other children; by which means I begat, and increased in him this opinion: that it was his honour to learn his book, and that my teaching of him would be more his pleasure than any body's else.

"To make which impression the deeper in him, I always laid the strictest charge upon him to tell me freely whether he knew the English of any word in Greek or Latin when he was construing with me, and that it was no shame to be ignorant of it; in that I have oft found that the discomposure of mind children are put into, when they know not what is demanded of them, and the shame and fear they are in consequently upon it, ruffles them so that they are thereby rendered unmeet to retain what shall be suggested to them, and unfits them for what they are about; for nothing is a greater help to fancy to conceive, and affords more strength to the intention of mind, and the retentive faculty, than that calmness of spirit which the Greeks call γαλήνη [stillness of the sea]. Which things being observed, I found in a little while a harvest answerable to all my pains; and the child made as considerable advances in knowledge as several others have done of double his years."

His Progress in Greek. "I have told you that, when he was about four and a half years old, he was put to his Greek Testament, and by reading daily some verses in the Gospel of St. John, together with reading the Latin Gospel, by that time he was five years of age, he was able to give a competent account of the sense of the whole Gospel of St. John, both in Latin and Greek, at the first sight. He began to be able to read any Greek book, and understand the character of the letters, the pronunciation of the words, and the use of the accents, besides that he was able to construe several of the smaller psalms in the Septuagint translation, and the hymns scattered up and down in the Gospels. The Latin Evangelists, at any place, became at first sight familiar to him."

The First Experiment with Hebrew. "When he had spent a month or two in his Greek, and I found that the one did not confound or entangle him in the other, but that his perceptions of both were distinct and orderly, and that there was no tumult in his thoughts, and that all was calm and serene in him, as if he had never studied harder than to spell and pronounce a syllable of two or three letters, I then asked him, as being resolved to make an experiment, whether he would learn Hebrew; and finding in him Hesiod's ἀγαθὴ ἔρις (an emulation after excellency), I considered with myself how to fence off those scare-crows which affright many of riper years from undertaking that language, and to render the letters, and the points, as accommodate to his years and fancy as possibly I could. These three languages (to which Dr. Casaubon, in his *Diatriba de usu verborum,* adds the Saxon language) are the entrance to real knowledge: His words are these: *Ad eruditionem non nisi per linguas aditus tibi patebit, quatuor autem linguarum studium præcipue tibi commendo: Hebraicæ, Græcæ, Latinæ, et Saxonicæ; quarum singularum usum et dignitatem, quo melius intelligeres, tractatum tibi de quatuor istis linguis adornavi.* Ep. Dedic. ad Filium Johannem. ('Languages are the gates through which you must necessarily pass in your road to learning. Four of these I would chiefly recommend: the Hebrew, the Greek, the Latin, and the Saxon. Of which four I have composed a treatise, in order to explain their use and dignity.')

"And if Tully, as he tells his son Marcus, in the very beginning of his most excellent book *De Officiis,* that both he

himself had studied Greek as well as Latin, as being beneficial to him as well in philosophy as oratory, and therefore advised him to the same pains; certainly we much more ought to study those languages, which are so peculiarly called the learned languages; in that all solid learning are fetched from authors in those three languages, and without the understanding of the most, if not all, of them, no man deserves, or ever will obtain, in the account of learned men, the repute of such a one."

Learning Hebrew as though it were "new-fangled English." "Hereupon my business was, as I said, to accommodate the Hebrew characters with the points to him and, as far as I could, I followed the same method in bringing him to read the Hebrew as I did in teaching him the Greek. I gave him the force of the Hebrew consonants by the names and sounds of the English letters, calling them a, b, c; and for the guttural consonants, besides the A, I told him they were but so many several H's wherever he met with them. I burdened him not with the distinction of the vowels, long and short, or with the diversity of the shevæs, but told him that they had the force of vowels, and how many were to be pronounced by A and E, and O, etc.

"And I never began with his alphabet, but showed him how to read a word as if the Hebrew letters were but new-fangled English ones; and so by learning him some words, and making him spell them, by joining the points to the consonants, I found he remembered them easier than if he had learned them loose. For so at first they were taught as comprised in an Hebrew verse which I had from Mr. Henry Jacob; that was once well known for his Rabbinical learning. The verses were these, wherein we have the order of the letters in the Hebrew alphabet :—

אַב גַּד הֵ וָז חַ טַי

כָּל מַן סָעַף צָק רֵשׁ תָּ:

In Latin thus:—

Calamum scinde-eum; et purgetur lutum;
Perfice particulam [scriptilem] *cogitatio arctatur reti.*

'Pen and ink and paper get,
And the thought is in the net.'

"I never was careful for the pronunciation of the Hebrew letters, so as to conceit any excellency in pronouncing ח, or ע, this way or that; since the learned Selden told me in his study—inquiring about the pronunciation of the oriental languages—the business of studying these languages is to understand the signification of the words and phrase; the pronunciation this way or that way is not a straw matter. Where we learn a language to speak it, there we must get the sound of the letter, or else we cannot be understood, or understand others; but where they are not spoken it is but a needless pains and curiosity, to endeavour one pronounciation before another. And when my child had learned to read one verse, and to call the letters, consonants, and points, by their force, I then engaged him in construing."

How Difficulties were Surmounted. "I began first with the Psalms, and we construed a verse at a time; and that his reading it might grow easier, we read and construed the first psalm so often as that the child had almost got it without book in Hebrew; by which means, being assured such and such a word had such and such a sound, he being able to spell the sound, as anyone that is master of orthography can, he could so help himself by that one psalm as that he was little gravelled afterward, except where necessity required, which will befal the gravest years as well as the youngest, and that is from the similitude of letters. For whatever distinction may be proposed by the difference of angles between *Beth* and *Caph*, between *Daleth* and *Resh*, and between *Gimel* and *Nun*, they are ofttimes so small, and being not observed by the printer himself, as that nothing but use, and understanding of the word by the context, can direct experienced Hebricians."

The Daily Time-Table. "When we were come so far as that we were to carry on the Latin, Greek, and Hebrew, this was my way with him: First, in the morning I heard him read English for a quarter of an hour, to frame his tone and pronunciation—for the more gracefully he read English, the more delightfully he read the other languages; and an ill tone in the English, like an error in the first concoction, was not to be amended in the following. About ten of the clock I heard him read, for the same space, some of his Latin Testament. In the afternoon, about two of the clock, I exercised him in his Greek Testament; and between four and five of the clock, in his Hebrew."

Correlated Grammar. "All this while I was not concerned at all to teach him any rules in his grammar or accidence κατὰ τὸ ῥητὸν, whether Latin, Greek, or Hebrew; but, as I perceived his apprehension and judgment increase, I instructed him in natural grammar, so that whatever hints or notions I infused were equally subservient to Latin, Greek, and Hebrew grammar, and also perfecting him in understanding the English tongue the better. Wherefore my first endeavour was to possess him with the apprehensions of the differences of numbers and tenses, and the several tokens of the cases, which he easily apprehended and could make use of; so that my whole endeavour was to follow, to encourage, and strengthen his natural perception."

Progress according to Capacity. "What I saw was facile I endeavoured to confirm; and when I saw anything difficult I did abstain from it for the present, till I was sensible he could, without the least reluctancy, and with some delight, receive it. So that by the time he was five years of age, or a little more, I perceived—though I never put him to learn without book any one rule in his accidence—he had that natural perception of the things contained in grammar, as that some children that had read over, and learned without book some considerable part of their accidence, could not make that use of it; neither were their judgments or reasons so much improved as my child was by this orderly suggesting of things accommodated to him; for which experiment there can be no general rules given, but must wholly be left to the judgment of the tutor, and the capacity of the child."

The Uses of Repetition. "By this time my child was five years of age and upward, and I thought he had variety enough in books and languages to exercise and delight himself. In order therefore to his further settlement in, and fixing, those happy beginnings he had made in the Latin, Greek, and Hebrew tongues, that there be not only a show, but that what he had learned in these tender years might be more serviceable to him for the future—if the Lord shall please to continue his life and health—about the beginning of the year, in January, we began all again. Wherefore, beginning with St. Matthew's Gospel in Latin and Greek—which he had scatteringly looked over before—and the Hebrew Bible at Genesis, we have kept a constant course therein; and whatever else he is daily put to, he is exercised in one or other of these more or less every day.

"Thus he is encouraged by seeing his own progress; and by keeping him constant to these, I am the better able to judge whether he retains what he hath learned, in that upon every occasion, without any trouble, I can make experience thereof. And I had not only this advantage, but when any gentleman came to make experiment of him, as the rarity of his attainments invited several for the satisfaction of their curiosity to see him, as they might more certainly to know where to pose him, so he might be more ready to give an account of himself.

"Though these books might have seemed exercise enough for such years, yet I made a further experiment of him as to the Latin and Greek tongues. And when he was five and a half years old I put him into Homer and Virgil, so as that by that time he has six years of age he was able to construe all Homer's *Batrachomyomachia,* and repeat many verses thereof without book; he was able to con-

strue all *Pythagoras* his Golden Verses, and repeat many of them; he could construe the three first Eclogues in Virgil, and repeat several verses there, besides what he had done in Terence and Corderius."

The Time and Method for Grammar and Speech. "When I saw him thus capable of these things, and that he had begun to have a competent *copia verborum,* I then began by little and little to instruct him in his grammar rules, more particularly to initiate him in the speaking of Latin, to prove him what answers he could give me in Latin, and so to make his own knowledge, which already he had obtained, to serve itself. And I observed the same measures of his answering in Latin as I did in the first dawnings of sense, and perception of the English tongue. And the closer I kept to that, and followed nature, the more successful I found the rules of art to be.

"For as it is observed in children, when they first begin to understand the mind of those who speak to them, they answer only in the affirmative particle, or negative, so when I began to talk with him in Latin, though I was certain he understood what I spake about, the most that for some time I could get from him, or he to reach to, was *imo* (yes) or *non* (no). And when I bid him ask me anything in Latin, as infants will say, when they are a-hungry, or a-dry, *Bread,* or *Beer,* so, although his understanding was such, as to speak to me in these forms of address that other children do to their parents, whilst he spoke English, yet when he was to speak Latin to me, he would when he desired a book of me, only say *Librum,* or *Liber,* without any addition of verb, or respect to the person for whom. Or, if the matter which he would have was that which consisted principally in a verb, as when he would see or hear anything, he would express himself by some mood or other of the verb, without regard to tense or person, as: *videre, audire, habere.*"

Self-correction by the Pupil. "Which broken attempts, as Minutius expresses it, *Dimidiata verba conantes,* ought to be so far from discouragement, or an endeavour hastily to reform, as that they ought to be highly cherished. For by reading he soon began to see his error; and, as grammar rules were more particularly undestood, of himself he would reform, or at least, upon the least intimation of his error, he soon avoided the like mistake for the future. So that in a little time, when I spake anything of ordinary occurrence, and within the circle of his observation and converse—giving him time to pause upon the words—he would soon understand my meaning, though he was not able to answer me grammatically in a continued proposition. Yet every day he gets ground: the more he reads the better able he is to understand and speak, and the more he tries and uses to speak the prompter he is to it."

The Time and Method for Latin Composition. "And now I began to find him, in some measure, capable of his Latin Grammar, whereupon I taught him the declensions of noun substantives, and adjective, the forming of verbs, as to their conjugation, the preterperfect tense, the supines, and participles, with the indicative mood of the four conjugations. Which when he could do, I began to try him in making of Latin. I seldom went beyond the exercising of him in the two first concords, and these in the most familiar way I could, and the more familiar and easy the more his delight, endeavour, and apprehension was. And when he came but near he was applauded; and where he was farthest off it was only told him he mist the mark. Which way of dealing with him made an enlargement daily in his understanding.

"For the further carrying on of this design, I made it my business to make him parse a verse in Virgil or the Latin Testament. Hereby he soon apprehended the difference between a verb and a noun; the prepositions are not many; a participle was to him a noun adjective; so as that he was chiefly acquainted with them, and little or no notice of adverbs and conjunctions, save their significations and that they were *indeclinable.* So that, which way soever I engaged him, I laboured all I could to

keep off the sense and sight of any difficulty, and that all should be as pleasant as may be. But no way I found so effectual to cause him to apprehend the concords as by reading; for though the abstract notion of them was not easily conceived by him, neither that of the nominative case with the verb, nor of the substantive with the adjective, yet so apprehensive was he suddenly of the sense of the context, as that he could easily find out one and the other, and easily form them together."

Learning through Doing. "Wherefore this certainly ought to be observed, if you would not discourage children that would learn, to let them see *in specie* [in visible form] what you would have them understand. For as few persons ever learned to discourse compactly by the naked rules of logic, and, on the other hand, persons of parts seldom discourse loosely, that have conversed with persons of close reasoning: yet when a man hath the exercise of discourse, he will much more speedily and effectually improve the art and rules of logic to his own advantage. So children, give them as few of the artificial rules of grammar at first as may be, till they understand somewhat of the language, and they will then digest more of the grammar rules afterwards in one month, than in a year before.

"And as it is in mathematical studies, in that the most that is taught ordinarily, is that the notions of a few definitions, figures, with the demonstration of a few theorems and problems; but what use to make of them they know not, neither are they taught, so as they learn it without any present gusto, neither do they afford matter of discourse; hereupon they are cast away. Whereas if the measuring of ground, the art of dialling, fortification, and architecture, were but παχυλῶς (or superficially) taught to youth, and so the first principles of speculative mathematics made intelligible and useful to them, those studies which are the best preparatives for real learning, and to rouse consideration and judgment as well as to prevent an over-easy credulity, would be more admired, and where there is one follower of them now, there would be one hundred.

"Thus is grammar, in all noble and ingenious children who are the care of private tutors, to be suggested. And if children be such as have anything of honour or emulation in them, they will more willingly learn an Eclogue in Virgil, or a satire in Horace—which will be more their credit to rehearse, and show their art and judgment to apply as occasions offer themselves—than only to learn a colloquy in Corderius, or such a piece of context as no man will have the patience to hear a child repeat. And the pleasure the child will find in any part of an author, will make him learn his grammar rules with more cheerfulness, that he may understand his author the better."

Of Models, Repetitions, and Variations of Speech. "Accordingly I have been and shall be, willing that my son shall learn as much of classic authors, Greek and Latin, as he will or can; for by that means he will get not only a *copia verborum* [copious vocabulary], but such a company of *formulæ loquendi* [fine models of speech], as will carry their own authority and elegancy along with them. Above all, I am daily speaking to him in Latin, and when I repeat ought to the same purpose I formerly spake to him about, I endeavour to speak in the same words, that so they may be more familiar to him; and when he fully apprehends them, as occasion serves, I vary.

"And as for variations of speech which, when used with judgment, make speech more copious and expressing: after that he had been a year in the Latin tongue, and had made some progress in Virgil, when in the expounding of Virgil, or Terence, any elegancy of speech did occur, which he could not readily apprehend, I am wont to give it him in a more familiar expression in Latin, and so the Latin both ways is enlarged to him. And when any Latin word occur, that as yet he is unacquainted with, and yet he knows the *synonimum* of it in Latin, I do not tell him in English, but use a more familiar *synonimum* to express its signification. Thus the new word is

apprehended in part, and the *synonimum* fully confirmed to him."

The Results of the Method. "This hath been the method I have used, particularly with my child, the success whereof is this: that in Latin he is capable to have any author read to him to his advantage, and the delight of his teacher; and for his Greek he will use Dr. Duport's Greek Liturgy and the Greek Testament, at church, to as much purpose and understanding, going along with the reader, as other children of some more years with their English. As for his acquaintance with the Hebrew tongue: besides the understanding of several psalms, he is fully acquainted with the twenty-four chapters in Genesis."

(*To be continued.*)

Parent Educators.

By Professor Bidart.

Translated by Miss M. S. Ryan, B.A.

IV. The Good Child. It is our purpose now to show how to cultivate the child's good qualities, not indeed to turn out the show "good" boy or girl whose "goodness" so called is of no real value, but to train up the really good child whose daily actions are guided by the law of love. To love mankind is the supreme law.

To be really good, a child must love his parents, brothers and sisters, and his companions; in general, the whole world; in particular, the poor and the afflicted. This guiding principle will show itself in his courtesy with those around him, and also in his kindly treatment of animals.

1. *The Rule to be followed in developing any and every Good Quality.* One's first thought is: "How many good qualities there are to be developed!" One is bewildered by the numerous methods which present themselves. Can it be that one general method will develop any good quality whatsoever? How easy it would be if one could say: "There is one rule which I must apply to every case; if I adopt this rule, which is simplicity itself, I need never fear to make a mistake."

Let us see. In our study of the various ways of training a child in good habits, obedience or self-control, we have found that these ways are fundamentally the same. The first essential is practice and repetition. It would be very extraordinary if any quality could be acquired without practice. If, later, this particular practice becomes distasteful, we are free to discontinue it, but if not, we continue it. Should we at any time discover that the habit in question, although pleasurable, is bad, then our reason makes us give it up. On the other hand, it is a valuable support to us, when we are sustained by our reason, to believe that our duty is to act as we did act.

Here we have it! Cause the child to *practise,* cause him to *love,* and cause him to *understand.* Everything is here! Here is the infallible and simple rule for which we seek. The application of our rule must be according to what we are aiming at; whether to deal with a quality or a defect.

Suppose you want to develop a certain good quality. You must create and multiply occasions by practising it, you must set an example of it, you must praise your child when he practises it, you must make him feel happy because he does practise it, and you must ensure his perseverance in it by appealing to his conscience.

If, on the other hand, we wish to uproot a bad quality, we must never give the child an example of it; we must shield him from any occasion of practising it; try to spare him from giving way to temptation or from the shame of defeat when the enemy appears, and we must get him to realise how bad this particular quality is. In other words, we must make every possible use of the child's own impulses towards goodness, avoid arousing his bad instincts, and give free play to those that are good.

2. *Filial Love.* Love your child, and expect him to love you; thus and thus only will you train him in love. (*a*) *Love them.* Can it be necessary to tell a father or a mother to love their child? Alas, parents do not always know how to avoid inflicting unnecessary suffering on their children,

by angry words and reproaches, or unjust treatment (see the sections on obedience). A parent is not supposed to be an executioner.

Love with your heart and with your reason, not with your nerves. "You do love me, darling?" says a mother a hundred times a day to her little one, and she devours it with passionate kisses. This demonstrative affection is not true love. The child does not know how to reply to such strained emotion; a frank, natural love he can understand.

Again, a parent who indulges in this form of affection, often does so most unjustly. I mean, for instance, that a mother will pet the child who submits to petting, while for another — Justice! Justice!

Another frequent injustice is that the parent, during the first two years of the child's life, lavishes on it all the tenderness of which she is capable; there is none left when the child, who has in the meantime lost part of its charm, comes to the age of six or seven. Its baby graces have disappeared, its childish prattle is growing sensible, it is constantly asking questions, and becomes, to some parents, a nuisance. The child, who was formerly a little god to be worshipped, is now a bore to be neglected. Such a change of treatment, which the child feels he has not deserved, makes him shy and unhappy. Oh, parents, a little less adoration for His Majesty Baby and a little more love for the uncared-for child. It is the humanity in our child which deserves our love, not the fascinating doll-part. Our love should increase as the child grows older; the baby whom we passionately love is less capable of feeling then than he will be a few years later when a show of love will be denied him. A child should never be allowed to feel a lack of affection.

Accordingly, a parent must show his child the right kind of love. To spur on the growing intellect to all kinds of precocious displays is merely for the satisfaction of a parent's vanity at the expense of the child's health and future; to pet him, and make much of him in the drawing room is simply to attract attention; to keep an excitable child at a ball until midnight is to give oneself pleasure.

There is only one way of loving a child, and that is, to love him for himself. Hence the parent must do everything necessary for his child's health, moral welfare and happiness. As far as possible, the child should be reared at home, surrounded by his parents' loving care, and he should not be sent away too young to a boarding school, where his parents can only see him from time to time.

Though a father, after every absence from home, may not bring his child some little present, he can still win and retain his love by constant kindnesses. "Is it not true," says M. Pérez, "that at any age little gifts and presents foster friendship, and the affection is a poor one which does not manifest itself in gifts. The child does not sell his love, but he does gladly give it in exchange, as it were, for caresses, sweetmeats, little unexpected treats, such as showing him a watch or a bird, singing him a little song, giving him a ride on one's knee, and so on; in fact, any device which combines pleasure and utility."

Too many children seem to find all their pleasure in being with their companions, and none in being with their parents, and, once they have got to this state, they will tend to want their pleasures outside and away from the family, and thus so much of the home affection is lost. How can we prevent our children from getting dull while they are with us?

We must amuse them and we must be amused ourselves while we are with them. This is quite possible without any loss to our own dignity. You can behave as a child without becoming a child. A father! A mother! They can be their children's playmates, and yet always retain, if they know how to secure it, the reverence of their little ones.

Another way of making our children take a pleasure in being with us is to share our amusements with them, and thus accustom them to higher pleasures. Let them accompany us in our walks, join us

in our excusions; they will be proud of the compliment we pay them. It will probably be easier for us to try to raise them to our level than to descend to theirs.

And then, let there be freedom and cheerfulness! Let the children feel quite at their ease with us! If we want them to remain willingly in our society, we must make it attractive to them. What a melancholy sight it is to see a boy trembling with fear in his father's presence, and longing for the moment to escape! No parent can want his child to reason thus: "While I am with father and mother I must be quiet and keep still, but when I am with the others, I can do what I like"; but rather in this way: "I'd rather be with father and mother than anywhere else. They don't mind what I do. I can laugh and call out, talk and run and jump about, so long as I don't do anything wrong."

To arrive at this result, we must behave towards our children as we do with our equals in society; we must be pleasant and good-tempered. We must not be continually scolding. We preach too much to children. If there is no reason for admonition or scolding, we should treat our children as we treat other people. This is what parents often fail to understand. We should talk to them as we would talk to our guests or friends or equals. "Cheerful conversation, free from restraint, is a means of forming a child's mind; it develops the child and makes him familiar with our point of view." It certainly is more successful in arousing children's good impulses than all the sermons and scoldings put together.

Take this to heart. If we parents can behave thus to our children they will love us, both as their parents and their friends! We cannot think too deeply on these words: *parents and friends*.

For a parent to be his children's friend does not mean that he has no authority over them; a child does not cease to love his parent because he receives from him some just punishment. No sensible parent will permit his child to fail in showing him respect, to laugh at his peculiarities, or to show pleasure when he puts himself in the wrong.

Later on, the parent must follow the excellent advice given by Locke:—"A father will do well, as his son grows up and is capable of it, to talk familiarly with him; nay, ask his advice and consult with him about those things wherein he has any knowledge or understanding... Many fathers...keep the knowledge of their estates and concerns from them with as much reservedness as if they were guarding a secret of state from a spy or an enemy...Nothing cements and establishes friendship and good will so much as confident communication of concernments and affairs. Other kindnesses without this leave still some doubts; but when your son sees you open your mind to him when he finds that you interest him in your affairs, as things you are willing should in their turns come into his hands, he will be concerned for them as for his own, wait his season with patience, and love you in the meantime, who keep him not at the distance of a stranger... Whenever he lights on the right, follow it as his, and if it succeed well, let him have the commendation. This will not at all lessen your authority, but increase his love and esteem for you."

Practical Work for Study Circles.

III. Inference and Reasoning (*contd.*).

The results are as follows:—

1. The average number of inferences given by each child at seven is one and one-half; the number rises at the age of twelve for boys and thirteen for girls to an average of something over three, which for higher ages remains fairly steady, with a slight tendency to rise.

2. The number of legitimate inferences rises decidedly at the age of twelve for boys and thirteen for girls, and remains fairly steady as far as examined, showing some superiority on the part of boys.

3. As for critical inference, it scarcely appears at all until the age of eleven for boys and fourteen for girls; is decidedly stronger in the case of boys, but cannot be

called general at any age examined for either sex.

4. Imaginative inference follows the same rule as legitimate inference.

This study will be found in detail in "Studies in Historical Method," published by D. C. Heath and Co.

In January, 1894, we sent out the following outline:—

"If you were travelling in a strange country, where you had seen no inhabitants, and found hundreds of oyster shells scattered about on the hills, how would you think they came there?"

Returns were gathered from various parts of the State, especially from Oakland, Stockton, and Orange County, and 3,410 papers were worked up by Mr. M. A. Tucker. The reasons given to account for the shells were divided into: (1) natural agencies, *i.e.*, it was the former bed of the ocean; (2) human agencies, *i.e.*, people had taken them there to eat the oysters; (3) animal agencies, *i.e.*, had been carried there by birds; (4) foolish agencies, *i.e.*, the wind had blown them there. Of course (1) represents the highest form of intelligence, (2) and (3) are about equal, (2) being superior, and (4) is very weak. Of the whole number of papers studied sixty-one per cent. gave natural agencies; twenty-eight per cent. gave human agencies; six per cent. gave animal agencies; and only three per cent. gave foolish agencies. One of the most interesting results reached by Mr. Tucker was a comparison between two parts of the State, one where the children had had a good deal of elementary science work, the other where they had had none. The children of the first section gave as explanations: natural agencies, sixty-six per cent; human agencies, twenty-four per cent.; animal agencies, five per cent.; foolish agencies, one per cent. In the second section, where there had been no elementary science work, they gave: natural agencies, fifty-one per cent.; human agencies, thirty-four per cent.; animal agencies, seven per cent.; foolish agencies, six per cent.

From almost any simple study on children, a curve can be drawn representing the general average ability in the schools of a city or county quite as impressive as the above. Mr. Tucker has worked over the material under a variety of other headings, and his conclusions are almost exactly the same as those reached by Mrs. Barnes.

Pedagogical Conclusions.

1. The power of inference should not be called for positively until about the age of twelve or thirteen, and from that age on to fifteen its definite exercise may fairly be included in school discipline.

2. While a difference at present exists between the average of boys and girls, this difference is not so great as to call for a different treatment of the sexes.

3. The excellence of inference varies so much from school to school that it may perhaps be fairly inferred that training can do much for this particular power.

New Tests for Composition Exercises.

1. A boy once read of some Indians who carried hatchets. A few days afterwards he saw some men with hatchets, and told his mother that he had seen some Indians. Was he right in making such a conclusion? Why?

2. A boy once heard that a very strong man ate rare beef, so he determined to eat nothing but underdone beef in order that he might be very strong. Was this good reasoning? Why?

See that the age and sex are indicated on each sheet.

IV. A Study on Children's Interests.

In the *Revue Philosophique* for December, 1890, appeared an article by Alfred Binet, describing an experiment made by him to determine children's ideas of familiar things. Two little girls of two and a half and four and a half years were questioned separately by Binet as to the meaning of the following words:—Knife, bread, doll, water, arm-chair, hat, garden, piece of sugar, thread, horse, table, mamma, potatoes, bottle, flower, snail, mouth, lamp, bird, dog, carriage, pencil, earthworm, shoes, finger, clock, house, wolf, omnibus, balloon, village, box,

handkerchief. The questions were repeated some fifteen times at irregular intervals of days, weeks, and even months, and all the replies written down. On examining the collected answers, M. Binet concludes (1) that children are very little impressed with the visible aspects of things; (2) their greatest interest lies in the use of things; (3) their ideas have but slight traces of the abstract.

In October, 1892, the teachers of Monterey county gave Binet's list of words to their pupils, simply asking them, "What is a knife?"; "What is bread?"; etc. Generalizations drawn from the papers of fifty boys and fifty girls of each age, from six to fifteen years inclusive, were published in the Pacific Educational Journal for February, 1893. In all 37,136 statements or definitions were charted, classified as follows: Use 18,414; larger term 6,605; action 1,529; abstract quality, 1,451; place 1,425; colour 210; form 658; structure 1,650; substance 2,992; and miscellaneous 2,202. The youngest children described things almost invariably by giving their *use*, and gave increasing attention with age to *larger term, structure,* and *substance.* Better results would have been obtained had *use* and *action* been grouped together, and also had the list offered more play for ideas of *form* and *colour.*

We now propose to try the following list, and ask your co-operation in the experiment. Will those of you who are willing to assist us provide all the children in your room with paper and pencil, at the composition or spelling hour, and read them the following directions as an exercise in written work: Write at the head of your sheet the name of your teacher, your own name, and your age. (If there is any objection to handing in the names of the children, merely write *boy* or *girl* at the head of the sheet.) What is grass, ice, summer, seed, water, bread, glass, river, table, sky, doll, shell, the earth, pond, diamond, marble, wool, cow, garden, sun, silk, picture, star, iron, boat, bottle, fire, finger, mouse, waggon, orange, cloud, cat?

Please give no other directions. Do not ask the children to define cat or tell what a cat can do, or what she is like, or anything of the sort, as such questions will suggest to them other ideas than those which naturally arise on hearing the word cat. Please do not tell the children what is to be done with the work, and do not ask them to be careful, as we wish their spontaneous, off-hand work.

Bring the papers with you Saturday, and they will be used as the basis of discussion, then collated, and the results reported as soon as possible.

Suggestions for Study and Practice.

Are Special Abilities Inherited? "The plan of this investigation was to make a comparison of the performances in school studies of children from the same families. These comparisons were based on two kinds of data, marks received by the pupils in their studies, and measurements of the abilities of the pupils in school studies as made by the available tests and scales. The investigation was made in three elementary schools, two in Madison and one in Seattle...

"There is no evidence, at least in these figures, for the notion that special abilities in certain studies run in families. Mental traits running in families are very likely more specialised than abilities in studies which involve large groups of mental functions. The children of any given family are on the average equally good or equally poor in all studies. Ability in school work is apparently inherited to the same extent as physical features, since the coefficient of correlation for children of the same parents are approximately the same for both physical and mental traits." —*Daniel Starch* (University of Winsconsin), on "The Inheritance of Abilities in School Studies," *School and Society*, Oct. 23rd, 1915.

A New Form of Tachistoscope. "All that [is] required to obtain a tachistoscope for class experiment and demonstration purposes [is] to affix a photographic

shutter, timed for momentary exposures, to the ordinary [magic] lantern...Slides prepared after the fashion of the ordinary lantern slides serve as exposure cards... The new arrangement has the advantage over the usual type of tachistoscope employed, in that fifty or a hundred subjects can take part at the same time in the investigation, and reliable averages can be secured; whereas with the ordinary tachistoscope the time taken to do the tests individually usually prevents a sufficient number of subjects being investigated, and, as a consequence, the conclusions drawn from the results may not be reliable.

" The new tachistoscope may profitably be utilised for the following purposes, which, while illustrative of psychological problems having pedagogical bearings, are also worthy of investigation on their own account, as there is a reluctance on the part of some writers to accept the present results :—the development with age of the range of attention; the proportion between the types of readers—fixating and fluctuating; the determination of the question whether this classification into types holds in the case of school pupils. These problems may suggest others for which the tachistoscope recommended may prove suitable.

" No application, it may be added, has or will be made for patent rights in this new form of tachistoscope, so that it is open to teachers of psychology or to makers of psychological instruments to improve and perfect the suggested arrangement. If it is to be characterised by any title, the writer desires Mr. Jenkins's [who " suggested the employment of the ordinary magic lantern "] name to be associated with his own, and suggests 'the Rusk-Jenkins tachistoscope,' "—*Dr. Robert R. Rusk,* on " A Tachistoscope for Class Experiment and Demonstration Purposes," *The Journal of Educational Psychology* (U.S.A.), September, 1915.

Progress in Drawing. " Our tables of distribution and curves show that the average child develops more ability in drawing before entering school at the age of six or seven years than he does in the entire eight years of his elementary school course...The long plateau subsequent to the level reached in grade three is clearly noticeable. This is completely in accord with the studies of children's drawings by Barnes, Lukens, Burk, and Götze, who report a plateau of non-development from the ages of nine or ten on to adolescence.

" In the light of these studies and the development of the same fact by the use of the objective scale, it seems pertinent to inquire whether our administrative practice is sound in assigning the same time in drawing in grades four and five as in earlier or later grades where natural development seems to be more marked. In a system having three or four sections each in the fourth and fifth grades, why not assign one section thirty minutes weekly for drawing, another sixty, another ninety, another one hundred and twenty? By adequate testing at the beginning and end of a half year or a year, the progress of each group may be determined.

" If thirty minutes weekly produces as good results as ninety, why not assign drawing a minimum of time during these years and appropriate the extra time, now generally given to this subject, to other subjects in which experience has shown that pupils do make rapid progress with the added time? To quote the late Professor James : 'Strike while the iron is hot.' "—*H. G. Childs* (Indiana University) on " Measurement of Drawing Ability," *The Journal of Educational Psychology,* Sept., 1915.

A Doctor's Estimate of Manual Training. " If one divides adult mankind, as one quite fairly may, into those people who never do anything with their hands outside the demands of their profession or occupation, and those who can and do employ their leisure time in manual or mechanical work, we shall be safe in saying that as a whole the latter, the handy men, are incomparably the happier. It may be argued that these are men with hobbies, and therefore happier than those with none, but I am not inclined to limit

the conclusion so severely, and am myself convinced that manual training, carried to such a point as to afford occasional occupation in later life, makes for the happiness of the individual...

"The methods of Sloyd were directly dependent on these considerations:—the boy had no help; he might take a term to do his bit; he might spoil it a dozen times; ultimately he had to get it right. Possibly it may be better to give the dull boy and the clumsy boy the encouragement of a bit of work finished, even if badly finished, but no one can doubt that this meticulous accuracy is magnificent for the superior intellect...

"I went to a public school not long ago. It was wet, and there was no one in the fields or the fives courts, so I was taken into the workshop. In one corner four boys had their heads touching one another over some work in a lathe. In school it might have been guessed that they were looking at a skit on a master or at a cricket record: in the manual training shop they were so interested in their work that they did not notice a master coming up until he spoke to them... As I talked [to the manual instructor] I watched a boy waiting to ask him about the work, and I thought he would have stamped with impatience if I had kept on a little longer. This is the spirit we want." —*R. N. Goodman, M.D.*, on "The Value of Manual Training in Education," *The Parents' Review,* Nov., 1915.

The Nature and Purpose of School Examinations. "Teaching itself is a process and education is a development. The examination exercise belongs to that process and should itself be a development. Just as the whole examination is an orderly process, so the examination exercises during the progress of a course should show a steady advance in the qualities they test. Is there any good reason, for instance, why a final examination in geometry or rhetoric should test the memory of certain definitions? Should the student at such a time be expected to frame once more the language satisfactory to the orthodox doctrine of a straight line or the theoretical difference between purity, propriety and precision? In a matter in which there is so much confusion, perhaps it may be permitted to propose for tentative consideration the question whether certain mechanical, quantitative factors should not be left to drill work and the shorter tests and ended there, and whether the final examination should not be exclusively devoted to the final proof of the mastery of the subject-matter through exhibition of skill to use ideas acquired before and power to do intellectual tasks appropriate to the subject...Examinations should test only one thing: the student's mastery of a subject-matter...

"It would not then be necessary to have many grades of ability. There would not be so great a difference as there is now between the best and the poorest. The standard of the power to do, the power to use ideas, has universal validity. It can be clearly defined, easily proved or disproved...If the power to use ideas, the power to do, were the final goal of school and college effort, there might not be so many to 'finish' the courses so regularly, but our standards would be both definable and defensible...A mastery of the subject-matter in any branch of study, the power to apply a body of principles, selected by those competent in each department, to new situations admits of but one quality." —*Frank K. Sechrist,* on "The Process of Examining," *Educational Review* (U.S.A.), Nov., 1915.

The Necessity of Exact Mental Tests in Schools. "The teacher has a considerable number of children under constant observation, and can, no doubt, form a very accurate estimate of their progress, so far as their lessons are concerned, but it has been found by actual experiments that the opinion of many teachers as to the mental status of their pupils is quite unreliable; and even those teachers who are the most accurate observers may often be at a loss to say whether a child who is falling behind his fellows is to be classed as lazy, inattentive, dull, and backward, or mentally deficient...

"At every age a child ought to be able to pass all the [Binet] tests for his own age, and for younger ages. If he cannot do so, then the tests for younger children with which he is successful will show the stage of development which he has reached ...[but he sometimes] succeeds with some of those intended for older children. Such advance credits are allowed to count."—*Dr. W. B. Drummond,* on "Measuring the Mind," *Child Life,* Oct., 1915.

Need of Self-Knowledge by Teachers.—"It is indispensable that a teacher should know the limit of his power and prestige so that he may not be deceived into believing himself able to do the impossible. Self-knowledge and a certain humility are necessary if we wish to guide others... When we are not able to lead the children with us, we must allow ourselves to be led by them...and await the propitious moment to take them in hand again, and to direct them into a desirable activity. All activity, and particularly that which the child chooses for itself, represents, if one is able to make use of it, a possibility of development."—*L'Intermediaire des Educateurs*, June-July, 1915.

Is there a General Factor in Mental Activities?—"In the process of discrimination in the several senses, the present experiments show there is no common factor of the nature of act. Any specific factor which may occur is of the nature of content, and this is specially so with regard to the auditory sense. Hence there is no such function as discrimination in general apart from G [general factor].

"With regard to memory there appears to be a very small general factor. Content may also cause a small specific correlation, but the range of content as a specific factor is not so pronounced in auditory memory as in auditory discrimination. There is no specific factor, however, between simple sensory memory and the more complex memory in the same sense, *e.g.*, between memory of pitch or rate and auditory verbal memory.

"Between simple acts of memory and discrimination a specific correlation exists when the sense concerned is the same, but is small even when the content is identical.

"In memory of verbal material a difference in the mode of presentation reduces the correlation less than a difference of content. A difference of presentation, however, does not necessarily imply different act, whereas it is not unreasonable to suppose that a difference in a complex content might call forth a different act.

"A process like painstaking, which by some has been regarded as a general function of the mind, is much more limited in its influence than is generally supposed.

"On the whole, the results support a view similar to the earlier one of Thorndike, if the general factor is admitted, and the results of Dr. Sleight. Specific factors are probably numerous; they can be of the nature or act or content. All except the motor factor are very limited in range. The other specific factor of the school subjects described as 'the association between written words and their meanings' is probably a group of simpler specific factors.

"From the present experiments it seems probable that a visual mode of presentation is more efficacious in teaching children than an auditory mode; but further investigation is necessary before any definite conclusions can be drawn."—*N. Carey,* "Factors in the Mental Processes of School Children," *The British Journal of Psychology*, Oct. 1915.

The Schools of the Future. "There are three things about the old-fashioned school which must be changed if schools are to reflect modern society: first, the subject-matter, second, the way the teacher handles it, and third, the way the pupils handle it...In the first place modern society realises that the care and growth of the body are just as important as the development of the mind; more so, for the latter is dependent upon the former, so schools will become places for children to learn to live physically as well as mentally...

"Our world has been so tremendously enlarged and complicated, our horizons so widened and our sympathies so stimulated, by the changes in our surroundings and habits brought about by machinery, that

a school curriculum which does not show this same growth can be only very partially successful...

"The function of the teacher must change from that of a cicerone and dictator to that of a watcher and helper. As teachers come to watch their individual pupils with a view to allowing each one the fullest development of his thinking and reasoning powers...the rôle of the child necessarily changes too. It becomes active instead of passive; the child becomes the questioner and experimenter.

"It is the rare mind that can get relations or draw conclusions from simply hearing facts. Most people must see and handle things before they can tell how these things will behave and what their meaning is. The teacher then becomes the one who sees that the pupils get proper material, and that they use it in ways that are true; that is, in ways that represent relations and conditions that actually exist outside the classroom...

"Dogmatic methods which prescribe and make for docility and passivity not only become ineffective in modern society but they actually hinder the development of the largest possibilities of society."—*John Dewey and Evelyn Dewey*, in their book entitled *Schools of To-morrow*.

Correspondence.

SIMPLIFIED SPELLING.

Dear Sir,—In your last issue you gave an account of an experiment in teaching reading, in which a section of children who had been taught first on the simplified spelling system, and later from the current spelling for fourteen months in all, were pitted against children who for nineteen months had been occupied with the conventional spelling only, the result being a balance in favour of the simplifiers. Such experiments serve a very useful purpose in supplying data on a subject where data is still rather scanty.

Individual teachers could do much to set such experiments in motion, and the Simplified Spelling Society will gladly assist any effort in this direction by supplying free to any *bona-fide* enquirer a copy of the "First Reader" from which the experiment was made. Teachers are invited to send a post-card to the Secretary, Simplified Spelling Society, 44, Great Russell Street, London, W.C.

The first experiment showed that the transition from simplified to current spelling is easy, and that even with the additional labour of making the transition a gain of several months' time as well as a distinct improvement in articulation is the result of beginning the teaching of reading with a rational spelling.—Yours, etc.,

CHRISTINA JUST,
Secretary.

The Simplified Spelling Society,
44, Great Russell Street, London, W.C.

Child-Study Association and the Constituent Societies.

The Association.—At the third annual Conference of Educational Associations, which will take place at London University, South Kensington, S.W., during the week ending January 8th, 1916, The Child-Study Association will hold a meeting in Jehangir Hall on Wednesday, January 5th, at 5.30 p.m., when C. W. Saleeby, M.D., F.R.S. Edin., will deliver a lecture upon *Saving the Future*. The chair will be taken by Sir John A. Cockburn, M.D., K.C.M.G., and a discussion will follow the lecture.

Members of the Child-Study Association are at liberty to attend any of the open meetings held by other associations during the Conference Week; and a programme can be obtained on application to the Hon. Secretary of the London Child-Study Society, at 90, Buckingham Palace Rd., S.W.

The London Society.—The subject of Dr. Kimmins' lecture on Thursday, December 9th, at 6 p.m. has been changed. It will be on *The Interest of London Children in Air Raids, at Different Ages*. W. Garnett, M.A., will take the chair.

Notices and News.

The Moral Education League has decided to devote its two meetings at the Conference of Educational Associations in January next to a discussion of the whole question of Training for Citizenship. These will take place on the afternoon and evening of Thursday, 6th January, 1916, at the University of London, South Kensington. Admission will be free to all teachers and to others interested in education and citizenship; but it is advisable to apply for tickets beforehand by letter, in order to secure places. The address of the League is 6, York Buildings, Adelphi, W.C.

The Simplified Speling Sosieti will hold a meeting at the Conference of Educational Societies at the University of London in the first week of January. On the afternoon of Tuesday, January 4th, at 2.30, in Jehangir Hall, Professor Gilbert Murray, Sir Frederick Pollock, Dr. R. W. Macan, Professor Grandgent and Professor Walter

Rippmann, will speak on various aspects of the problem of simplified spelling.

An Educational Authority and Educational Research.—" The General Education Board... To enable the Superintendent of Education in the State of New Hampshire to organise a bureau for the critical study of school processes and results in that State, an annual appropriation of 5,600 dollars has been made.

" To the School of Education of the University of Chicago, the Board has appropriated 7,500 dollars to defray the expenses of conducting certain experimental studies in methods of teaching reading and handwriting...

" The Board has engaged the services of Professor Lotus H. Coffman, of the University of Minnesota, to make a study of the training of teachers for rural schools... The State of Minnesota has developed distinctly novel and successful methods of procedure in dealing with this problem, and it is the purpose of the Board in making this study to have the results of the experience in Minnesota placed at the disposal of the educational world."—*School and Society* (U.S.A.), Nov. 6th, 1915.

Training for Special Schools' Teachers.—Organised schemes of training for teachers in special schools are being started in London and Manchester.

Reviews.

School and Life. Petrograd.

This interesting weekly journal reaches us regularly in spite of the war. The latest numbers show that educational activity is still vigorous. Count Ignatieff, Minister of Education, has sent a circular to educational committees in which he says :—" While realising the difficulties of carrying on normal teaching during the present circumstances, the Ministry of Education begs educationalists to turn their efforts to create in school such an atmosphere that the outside happenings may have as little evil influence as possible on the present generation of children."

This circular has had a ready response from all concerned, and children are reaping the benefit of it on all sides. Moscow is to the fore with her efforts to take the children off the streets after school hours, and is providing playgrounds, clubs, reading rooms, etc. Playgrounds have existed for two years, and have been a great boon ; in one summer 69,000 children availed themselves of them.

The playgrounds are founded and supervised by thirteen care committees, aided by honorary helpers and a few paid workers. There are two kinds of playgrounds : one specially for games, and the other for general handwork and nature study. Children are eligible for either kind till the age of thirteen. The playgrounds were open from 4 to 5.30, and from 6.30 till 8 p.m.

Clubs are the natural outcome of the playgrounds. When the latter were closed in autumn the children gave the idea of still having a meeting place ; the care committees then instituted twenty-eight clubs all over Moscow. The work in them resembles very much the work done by the Happy Evenings' Association, only the Russian children are expected to pay a trifling fee and to undertake much more responsibility than their English brothers and sisters. The club rules are few and to the point : (1) Do not come before five ; (2) Finish off what you start ; (3) Clear up when you finish ; (4) Do not interfere with others ; (5) Take care of club property ; (6) Do not spit or be dirty ; (7) Have clean hands and feet ; (8) Take an interest in the club.

A special feature of the reading rooms is an effort to induce the adolescents (especially) to read by exhibiting huge placards or postcards with scenes from the books (just as we use theatrical posters, etc.). A movement is on foot to encourage children to collect illustrations themselves and to make these pictorial handbills for the reading rooms. The Russians are fully aware of the inestimable value of pictures in the school, and one contributor gives his experience in using them as composition exercises, both in school and home teaching.

Another interesting article is a plea that all schools, however humble, should possess full particulars of date of building, cost, subjects of course, any important events connected with the school, any names of pupils who have shone in any walk of life, specimens of pupils' work in different years, old account books, reports of excursions, etc. He declares that if this were done systematically the data would be most invaluable to future historians, not to mention the benefit to new teachers and pupils, especially the former. All new teachers should study these chronicles, as they show the character and tendency of the school and the wants of the neighbourhood. Every teacher should collect facts, etc., arrange them in order, and pass them on to his successor. The author says a school that has lived some few years has as much right to its history as a kingdom which has survived for centuries.

The other most important articles are :—The use of pictures in teaching composition ; The study of words which have been coined owing to influence of present events, *e.g.*, *boche* ; The choice of text-books ; Lack of education in mining districts (no compulsion ; children work instead of going to school) ; American ways of helping slum children ; Rules and regulations about schools for refugees ; Transfer of certain university schools or faculties to areas not affected by the war : some of the schools of the Kiev University are invited to Saretoff ; Government rules and regulations anent entrance examinations, percentage of admission, number of candidates for admission ; etc.

Maternity and Child Welfare. A plea for the Little Ones, with illustrations from the Bradford Scheme. By E. J. Smith, Chairman of the Health Committee of the Bradford Corporation. Pp. 88. P. S. King and Son. Price 1s.

This is an instructive and valuable little book, giving an account of the Bradford Municipal Maternity and Child Welfare Scheme, in which all those who are interested in schools for mothers, baby clinics and similar institutions, will find helpful suggestions, and will be encouraged by the description of the good results of co-ordinated effort in Bradford. It is not merely a bare report of achievement, but the writer has indicated "the reasons, economic and ethical, which in his judgment make work of this character of supreme importance to the State." The chief topics are: Ante-Natal Clinic and Maternity Home; the Infants' Department and Milk Depôt; Feeding of Expectant and Nursing Mothers; Pre-School and Post-School Clinics; Women Health Visitors; and Married Women in Factories.

L'Intermédiaire des Educateurs. Jan.-July, 1915. 3 fr. 50 per annum; to teachers, 2 fr. Bovet, Geneva.

This journal, in its third year, is not now published monthly; thus the first of these three numbers contains the issues for January to March. After a discussion upon the interpretation of statistics of psychological types there follows a suggestive article dealing with the difficulty of an equal valuation of pupils in examinations, and giving the scale adopted, and percentage results obtained, in the annual examinations of Swiss recruits in reading, composition, arithmetic and civics.

In the second number, for April-May, appears a reprint of the tests suggested by Dr. Decroly in *L'Ecole Nationale,* and which have already been explained in CHILD-STUDY. The third, for June-July, gives an account of an enquiry, along the lines of one published by M. Jonckheere, into the reasons why teachers have adopted their calling. Only twenty replies were received, of which fourteen were Swiss. The numbers are too few for any valid conclusions, but the reasons given were suggestive. A very interesting account is also given of how, in the examination of some young kindergarten teachers, an accordion was played in a garden near to that in which they were giving their criticism lessons. The object of this purposeful interruption was to see what steps (if any) the teachers would take to control or win back the attention of the children.

Archives de Psychologie. No. 55 (Aug., 1914), 3 fr. 50; 57-8 (May, 1915), 8 fr. 50; 59 (June, 1915), 3fr. 50. Williams and Norgate.

This continues to be one of the best European journals dealing with psychological enquiry and discussion; the issue for August, 1914, contains an article on visual images, and automatic movements; and another on some contributions to a study of dreams. The issue for May, 1915, runs to 224 pages, and is entirely given up to the experiences of a Mlle. Vé, who is termed a modern mystic; on the whole forming an important contribution to the study of religious psychology. Part 59 contains another contribution to the study of religious psychology. Part 59 contains another contribution to the methods of using the Binet-Simon tests with abnormal children, this one by Mlle. Descœudres, and a short article upon experiments in the memory of spontaneous associations by Dr. Claparède.

Schools of To-morrow. By JOHN and EVELYN DEWEY. Pp. viii., 316. J. M. Dent and Sons. Price 5s. net.

Any book by Professor Dewey is sure to be rich in interest and wisdom, and this one is of special interest because it is an attempt to peep into the active work of schools of the future through the work of the most striking of those of the present. The principal schools selected for this purpose, and described by Miss Dewey, are:—Mrs. Johnson's at Fairhope, Alabama; The Elementary School of the University of Missouri, at Columbia, under the direction of Prof. J. L. Meriam; The Kindergarten of The Teachers' College, Columbia University, New York; "The School of Childhood," Pittsburgh; The "Play School," under Miss Pratt, in New York City; The Francis Parker School; The Gary School, Indianapolis, under Superintendent Wirt; and Public School 26, Indianapolis, under Mr. Valentine.

The author's aim is to show that education for leisure (academic) and education for labour (vocational) may be, and should be, combined in practice. They say "the first business of the public school is to teach the child to live in the world in which he finds himself." Granted, but this is very different from learning to earn a living in the world in which he finds himself. Yet the latter is roundly declared to be the aim in some of the schools described, in one of which the pupils do "quite a business in the neighbourhood."

The main topics discussed are:—Education as natural development; play, freedom, and individuality; the school in relation to the community; education and industry; education and democracy.

All who profess and call themselves progressive educationists should read this book.

PUBLICATIONS RECEIVED.—*Journal of Education; Educational Times; Child-Life; Secondary Education; The Parents' Review; The Journal of Educational Psychology* (U.S.A.); *Educational Review* (U.S.A.); *School and Society* (U.S.A.); *Child-Life* (U.S.A.); *The Training School Bulletin; School and Life* (Petrograd); *The Social Reform Advocate* (Madras).

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The Journal of the Child-Study Association.

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Child-Study.

The Journal of the Child-Study Association.

The Object of the Association is the Scientific Study of the Mental and Physical Condition of Children, and also of Educational Methods, with a view to gaining greater insight into Child-nature and securing more sympathetic and scientific methods of training the young.

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The Society is not responsible for the facts or opinions given by the Authors.

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Norms of Performance in Reading.

By P. B. Ballard, M.A., D.Lit.

What is the fundamental and essential factor in the ability to read? Binet seems to assume it to be fluency; for the scale for marking reading in his "Barême d'Instruction" is based upon the frequency of such pauses as are not necessary to elucidate the meaning of the passage read. The examinees are classified according as they pause after the letters, the syllables, the words or the phrases. A more recent investigator (Daniel Starch, "The Measurement of Efficiency in Reading," *The Journal of Educational Psychology*, vi. 1, p. 2), discriminating between the silent reading we do for our own use and pleasure and the oral reading we do for the benefit of others, claims the former to be the more important, and selects the comprehension of the material read as the first essential, and speed of reading as the second. Compared with these, intonation, expression and pauses he regards as unimportant. For this point of view there is much to be said. It is significant of that happy change which is taking place in our schools—the change from reading as an elocutionary display (a very indifferent one at best) to reading as a pleasurable pursuit. But comprehension is a very difficult thing to measure; and it presupposes a more rudimentary ability which is quite easy to measure—the ability to translate certain visual symbols into sounds, whether those sounds are actually produced or are merely imagined. This is the basal ability—the *sine qua non* of reading—the step which no amount of intelligence would enable the learner to dispense with. His intelligence will, of course, eke it out; it will enable him to anticipate coming words, to respond to slighter cues; but ultimately his power to read is rooted in his ability to translate symbols into sounds, and this fundamental ability is what I set out to measure. It is not the whole of reading; but it is the basal and indispensable part, and it is the part which best lends itself to exact measurement.

The test I adopted after some preliminary experiment is on the next page.

The pupil was given a paper on which the test was printed as above, and was asked to read as fast and as carefully as he could until he was told to stop. The number of words correctly read in a minute—that is, the total number read, minus the number misread—gave the score. If the examinee hesitated for more than five seconds over a word and did not seem to be on the point of saying it, he was prompted and told to pass on, that particular word counting as an error. He was thus prevented from being too heavily penalised by his inability to recognise one or two particular words.

It is quite clear that the test does not take intelligence into account; it is designed to measure the bare mechanical art of reading—the degree of facility with which a pupil can translate the symbols of the simplest and commonest words of the mother tongue into the words themselves. Sense material was discarded as tending to confuse the issue. If an intelligent lad, for instance, starts reading a fairy tale which begins "Once up on a time," the recognition of the first word brings inference into play, and the rest of the phrase is largely a matter of memory. But no such intelligent anticipation is possible in the test used; each word, standing isolated in meaning, has to be read without any help

ONE MINUTE READING TEST.

is me on at by so us an it or be

to as he of in go up am if no we

my ox do the and for but him

are can she lot let you not was

out try see mix van now boy saw

bit met top run man pet cat get

did dog bad red cup bee lit pin

had ran pen nut big old yet rob

run leg fun lip new fog has sit

sly wig mud box ink sat end cut

pay fed who six lad wet dry cow his

peg tin say eat any far set bud kid pup

fox ask egg cab ill use jam all pit got

sad tea sky one yes fur act toe her our

ten arm rock gone feel that rich till long

flat this part foot made upon came mile

back sand time said then wall into were

done walk much loss seem went come

from the context. It has to be read, not inferred.

Much scorn has been levelled at this type of reading. It has even been denied that it is reading at all, and has been contemptuously called "barking at print." But my investigation tends to show that this mechanical response to the seen word, this barking at print—call it what you will—is not only the basis of all reading, good as well as bad, but is also a trustworthy criterion of the interest with which reading is followed as a pursuit.

As a test common to children of different schools and different ages, it possesses many points of advantage. Familiarity with subject-matter, which must always be a variable and disturbing factor where sense material is used, does not enter into the question : there is no subject-matter. A peculiar knowledge of uncommon words avails nothing : there are no uncommon words. However young a child may be, however rudimentary his knowledge, if he can read at all, he can read some of the words in the first three lines; for all the common two-letter words in the language are to be found there. And however proficient a child may be he will find the task of reading the whole of the one hundred and fifty-eight words in one minute quite as much as he can accomplish.

But these *a priori* reasons in favour of the test do not dispense with the necessity of testing the test—of comparing, for instance, the results obtained by using this test with those obtained by using sense material, such as an "unseen" passage in the ordinary school reader. Such a comparison I carefully made with ten boys of about eight years of age. The mode of scoring was in each case the same—the number of words correctly read in one minute. The first point to be noted is that, although thirty-two per cent. more words were read per minute in the continuous prose than in my test, the order of merit was, with one trifling exception, the same in both cases. To test one kind of reading is virtually to test the other.

The second point to be noted is that the discrete material gives a higher degree of reliability or steadiness: for when the children were put to read the same passages again after five minutes' interval, they improved but seven per cent. with the discrete words as compared with an improvement of twenty-two per cent. with the continuous prose. The seven per cent. improvement was perhaps entirely due to a loss of nervousness; but most of the improvement in the other case was doubtless due to the acquired familiarity with the meaning. As a test, therefore, the discrete words are better suited for repeated use.

In estimating the speed of reading, it is well to be clear what precisely we are measuring. For there are four possibilities. We may measure the normal or the maximal speed of either oral or silent reading. The speed measured in this test is the maximal for oral reading.

The question may be raised : How far is the recorded speed a real index of the speed of reading as distinct from speed of articulation. There is little doubt that adults can read silently very much faster than they can read aloud—very much faster than they can articulate the words. But this is not true of a young child. I found by testing a number of children of seven years of age that they could speak or recite at the rate of one hundred and seventy words per minute, while they read the test words at the rate of forty per minute. Again, girls of nine-and-a-half years old who read eighty words per minute were able to recite two hundred and twenty words per minute.

The test was given in forty-nine schools to 11,588 boys and 11,082 girls. The scores given below indicate the average number of words read in one minute :—

TABLE I.

Age.	Averages actually obtained. Boys.	Girls.	Probable Norms. Boys.	Girls.
6 — 6½	18.4	21.2	18.	21.
6½— 7	28.4	32.6	28.	33.
7 — 7½	37.3	42.5	38.	43.
7½— 8	49.1	53.1	48.	53.
8 — 8½	56.2	62.4	58.	63.
8½— 9	67.6	71.2	68.	72.
9 — 9½	75.6	79.4	76.	80.
9½—10	81.3	85.9	82.	86.
...	...	...	...	...
13½—14	115.	122.4	115.	122.

TABLE II.

Comparison of Schools in Good and Poor Districts.

Age.	Schools in Slums. (10) Boys.	Girls.	Schools in good Neighbourhoods. (9) Boys.	Girls.
6 — 6½	17.8	19.4	... 17.8	26.9
6½— 7	24.8	26.2	... 37.1	41.7
7 — 7½	32.3	33.3	... 47.9	53.8
7½— 8	43.4	39.8	... 60.2	64.0
8 — 8½	51.2	51.9	... 66.6	69.0
8½— 9	63.0	62.2	... 80.5	81.2
9 — 9½	70.2	66.6	... 85.5	90.5
9½—10	77.4	76.7	... 92.0	94.6
.....			...	
13½—14	112.8	112.2	...122.6	127.1

The progress with age may be readily seen from Chart 1. Generally speaking, a steady gain of twenty words per annum is observable from six to nine years of age, after which the rate of gain begins to slow down.

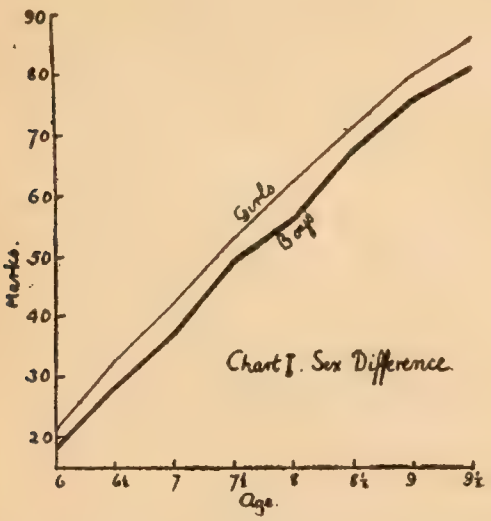


Chart I. Sex Difference.

The orginal experiment stopped at ten years of age; for I did not regard the test as suitable for older children, with whom the mastering of the mere mechanical factor may, as a rule, be taken for granted; but, as an afterthought, I extended it so as to include children between thirteen-and-a-half and fourteen. The results show a considerable flattening of the curve after ten, the average gain per annum being reduced to less than nine.

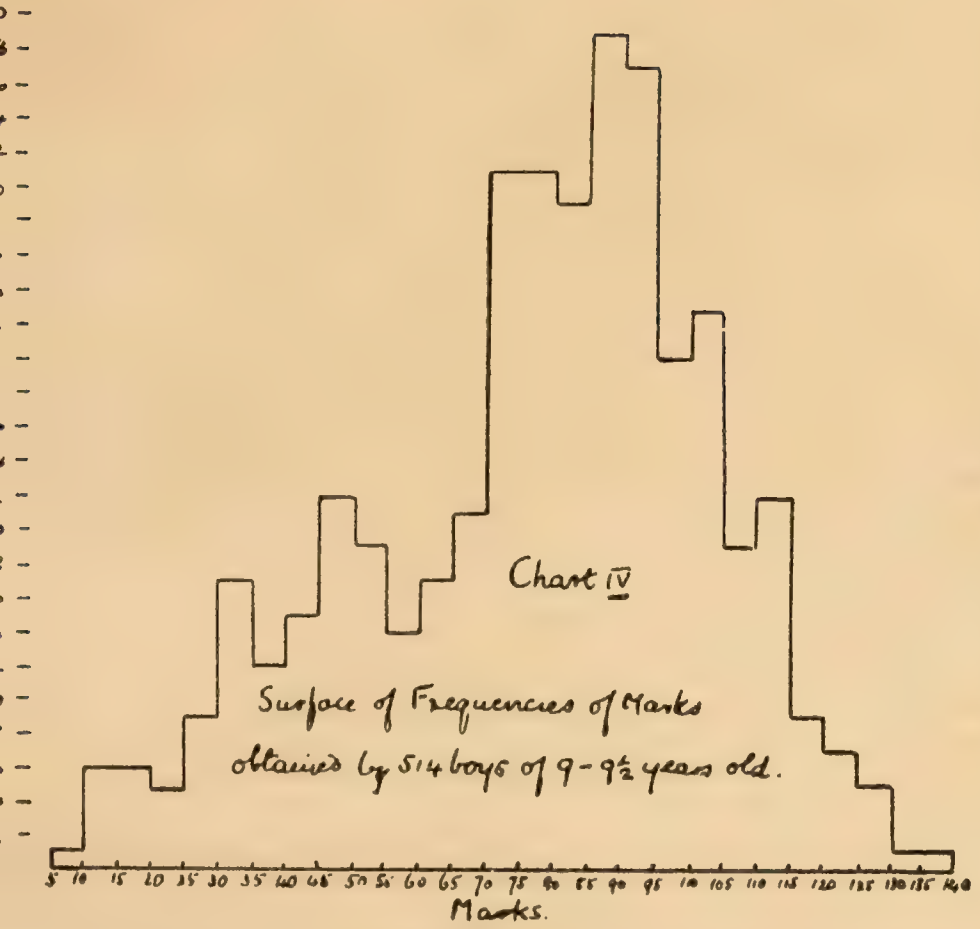
Distribution of Marks. In order to ascertain the mode of distribution tbe individual scores of 514 boys and 540 girls between nine and nine-and-a-half years of age were examined and arranged so as to show the surface of frequencies (see Charts 4 and 5). The average mark for the boys was 77.4, and for the girls 80.5. It will be seen that the distribution does not depart widely from the normal. That of the boys is more " skew " than that of the girls, the node being higher although the average is lower. The girls' marks show the usual characteristic of the sex; they are more closely grouped about the central measure.

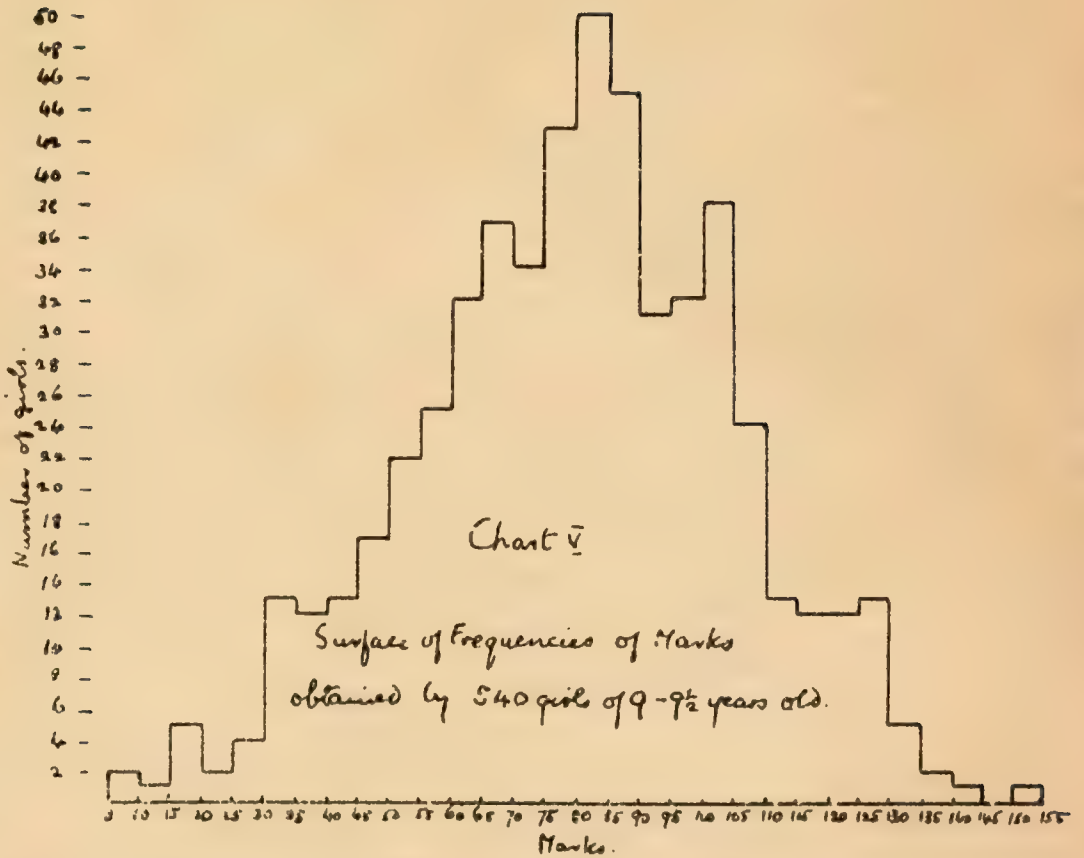
Home Influences. Among the forty-nine schools I included ten which were reputed to be attended by the poorest children in London; and the figures in Table 2. (and in Charts 2 and 3) enable the reader to compare these schools with those situated in good residential areas. It will be seen that both boys and girls in good neighbourhoods are about six months (ten marks) in advance of the average; and in poor neighbourhoods the boys are three months behind, and the girls six months. Thus for the extreme types of home we find a difference of nine months for boys and twelve months for girls. A girl of eight in Dulwich can read as well as a girl of nine in Bermondsey.

Through the courtesy of a friend, I was enabled to secure results from six elementary schools in Lancashire. In general tendency they tallied with the London results; but the Lancashire boys were three months ahead of London boys, and the girls four months ahead. The six schools, however, included no poor schools, and there is reason to believe that the social conditions were above the average.

There is nothing to indicate whether the superiority of the children from good homes is due to heredity or environment—to higher native ability or to better opportunities. Both probably contribute.

Sex Differences. The statistics obtained lend support to the popular belief that girls read better than boys. Generally speaking, they are five marks or three months ahead. But it is a curious fact that this difference does not obtain in slum neighbourhoods. There the boys read quite as well as the girls. This is not merely true of the ten schools taken in a lump; but,





(The blocks for the five charts have been kindly lent by Professor J. A. Green, Editor of *The Journal of Experimental Pedagogy*).

with one exception, of each of the ten schools individually. Whatever the reason may be, whether it is due to the girls being more fully employed minding the baby—there generally is a baby—or doing domestic work, or whether this intrinsic sex difference does not hold good generally, the fact itself seems to admit of little doubt.

Number of Errors. Occasionally a reader rushed through the test with little regard to accuracy, and thus made a fairly high score in spite of many blunders; whilst another reader would proceed more cautiously and secure a lower score although he made no blunders at all. The majority, however, maintained a steady level of cautiousness; and on an average about three mistakes were made by children of all ages. This means that accuracy improved with age and was roughly proportional to speed; for to get three mistakes out of eighty-six words read (see score for girls of nine-and-a-half to ten) was about four times as creditable as to get three mistakes out of twenty-one words read (score for girls of six to six-and-a-half).

Method of Teaching. The method of teaching reading in all the schools tested was some form of the phonic. The alphabetic method pure and simple may be said to be obsolete in London, although the children are generally taught the conventional names of the letters either at the same time as their phonic values or after the art of reading has been at least partly acquired. The "look and say" mode of reading, into which all other forms ultimately merge, is to a greater or lesser degree incorporated in the other systems. In fact, the system in vogue is mixed, with the phonic element predominating. There are, however, various forms of the phonic method current, some simple and some complex.

Perhaps the most systematic and complex of all is the Dale method; and in nineteen out of the forty-nine schools this method is followed. Do the scores at these nineteen schools afford evidence of the superiority of this system? How do they compare with the scores of the thirty non-Dale schools? Taken as a whole, the Dale boys are one month behind when they are under seven years of age, and two months in advance after seven; while the girls are two months behind when under seven, and two months ahead after seven. But five of the nineteen Dale schools are included in the nine schools above referred to as situated in the wealthier neighbourhoods. And if the influence of home and district be eliminated, it is doubtful whether the Dale results are as good as the non-Dale. It is certain that they are no better.

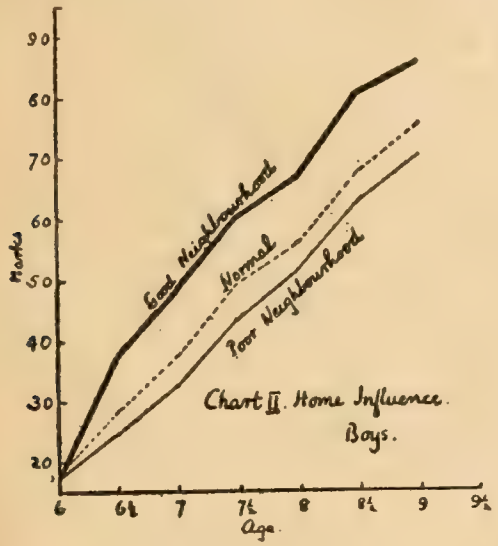
Here is a system of high repute, regarded indeed by some as the mark of up-to-dateness in infant teaching—a system requiring special training on the part of the teacher, and involving the use of special apparatus and special books; but, judging from the results achieved, it is no better as a means of teaching reading than the ordinary phonic system in common use. It is true that it has other merits. It includes other things besides reading proper, such as printing, drawing, and phonetic analysis—things in themselves valuable; but taken purely from the reading point of view, it fails to substantiate the high claim generally made on its behalf.

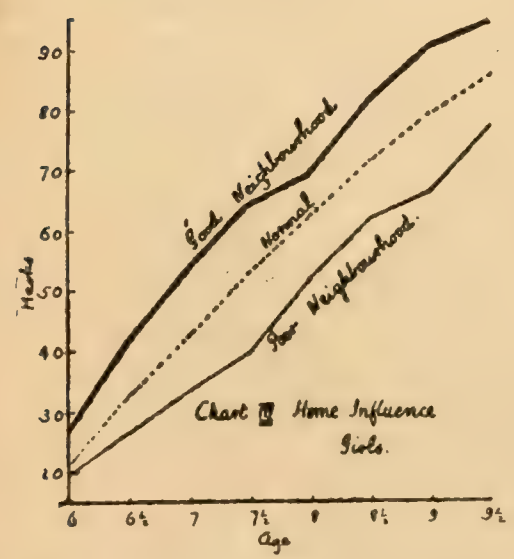
What then is the salient characteristic of method in the schools where the test shows reading to be exceptionally good? It is this: in the good schools reading is encouraged as a pursuit, and not merely taught in a series of lessons. The children read for the sake of the story, not for the sake of reading. It is a pleasurable occupation, and not a tiresome phonetic drill, nor yet an elocutionary display. Phonetic drill and elocution have their place in school routine, but the root of proficient reading grows in other soil. In the school where the reading is best of all even children of six read small fairy-tale books for pleasure.

There is one arresting exception to the above generalisation. In a certain infant school where no private reading takes place, but a large amount of word building is taken on the blackboard, the result reaches high-water mark; but in the senior

school the curve sinks to the normal: the proficiency is not maintained. It will thus be seen that the same apparent results may be obtained in the earlier period by opposed methods; but while the momentum is kept up by the one method, it is lost by the others. As ever, it is a question of interest.

Limitations of the Test. It should be clearly understood that this test, consisting as it does of words of no connected meaning, is intended to be used as a test





only, and never as material for practice, nor even as suggesting the type of material for practice; for I strongly hold the view that in selecting reading books for children, subject-matter is a consideration of supreme importance. If the subject is of no interest to the child, if it would not grip his attention when read *to* him instead of *by* him, then we must regard it to be of the wrong sort, unless, indeed, we reject the view that the main aim and purpose of the teacher of reading should be to hasten the coming of the time when the child will spontaneously take up a book and read it for the sake of what it has to tell him.

And although the test is oral, it must not be inferred that practice should be entirely oral, or indeed mainly oral. For the out-of-school reading, for which the school reading is a preparation and a training, is almost entirely silent; it is reading as a device for getting ideas. And the training of any specific activity should always, as far as possible, take the form of activity. It is not always possible. At the earliest stage of reading, for instance, much drudgery in associating symbols with sounds is necessary before the process is sufficiently mechanised for the sense of what is read to stand out clearly and predominantly in the mind. Indeed, for some time, the child, unless he reads aloud—unless there is somebody for whom he feels he is doing something—will not read at all. But the sooner this stage is passed the better.

Again, fluent reading, regarded merely from the mechanical point of view, is mainly a matter of practice, and the amount of practice given in school, especially where individual class reading—reading in turns—is adopted, is so small that many years pass before a fair degree of fluency is attained.

The reasons are now clear why I regard this test as useful for the early stages of reading only. As the child grows older the aspect of reading which becomes increasingly important is the extent to which it can be employed as a thought-getting device—the accuracy and rapidity with which the child absorbs the meaning of what he reads privately.

It has often been pointed out that to read mechanically is one thing; to understand what is read, another. And although it will be granted that a child may do the former without the latter, it is equally certain that he can never do the latter without the former. Until, indeed, a child can read about one hundred of the test

words per minute, the mechanical art of reading cannot be said to have been mastered; and the utilisation of the test is profitable as a means of measuring his fluency; which is roughly a measure of the practice he has had; which, again, is roughly a measure of the interest he takes in reading. Beyond that stage other tests overshadow the mechanical one. Reading, indeed, cannot in any sense be regarded as a simple process, nor can the same means be adopted for measuring proficiency in the earlier and later stages of acquiring the art.

Social Aspects of the School.

By Miss Amy F. Purvis.

In this day of social inquiry and attempts at social reform and legislation, perhaps it may not be out of place to consider the social side of school life, and the spirit which youth carries from the school society to the large community without. It is a comparatively short time since it was borne in upon English teachers that the school was a living cohesive community. A still shorter time has elapsed since this was realised by our education authorities. In point of fact I believe it is scarcely ten years ago that a paragraph was for the first time inserted in the Code of the Board of Education to remind the teacher of the importance of "the corporate life of the school." Before that the school had been simply a collection of individuals. True they were taught in the mass, but the idea that they might learn as much or more that was valuable from one another than from the teacher had not yet dawned.

The early connotation of the term "school" was a number of scholars mastering, or trying to master, individually certain material. This individualistic attitude to education was strengthened by the fact that the world's first great educational reformers treated the subject in the same manner. They did not consider the education of mankind, but the education of the individual. They were for the most part private tutors who, in their educational treatises, discoursed on the education of a prince, the education of a gentleman, and so forth. For instance, there was Rousseau, who was concerned with the education of "Emile," also Locke, who taught one boy, the son of a gentleman, and Herbart, who was a private tutor to three boys. Although the latter enlarges on "The Science of Education," we cannot read his work without being reminded again and again that he bases his generalisations on insufficient experience. Froebel wrote largely about his experiences as tutor, though he and Pestalozzi had undoubtedly a much wider experience, and treated education from a wider standpoint than their forerunners.

Child-study and psychology, too, have made great progress with the consideration of the individual, but group or crowd psychology is still in its infancy.

To-day, as teachers, we realise that a group of children must necessarily be a society even apart from any conscious attempt on the part of the educator to foster or prevent community life, because, first of all through the mere sitting side by side, children act and react upon one another. Mind, as someone has said, acts upon mind largely in the region of subconsciousness. Then there is the meeting of pupils on the way to and from school, and at recess, with all the attendant quarrels and hand-to-hand fights, bartering of treasured possessions and sharing of lunches. In the class-room they hear the same thing being said by different people in different ways, sometimes in different words, and best of all they sometimes hear different points of view. It is evident, therefore, that the school, even in the good old days, was a society, though that society may not have been of the best kind.

The serious consideration of social life in English schools may be said to have taken its rise with Arnold of Rugby, who recognised the school playground as a potent factor in education. He was the first to proclaim publicly that the playing-

field, with the social influence which it generated, had an important bearing on the boy's subsequent behaviour as a social unit.

With him also originated the "monitor" and "fag" systems. He saw that the older boys in a community have a decided influence on the younger ones, and he recognised and legalised this influence by placing authority and responsibility in the hands of those whose characters implied that they would be able to use it. He also gave active approval to a period of servitude for the new recruits. No doubt these systems of monitors and fags have been abused at times. We have heard of instances where a fag has been bullied unduly, or a monitor has wielded too harsh an authority. But they contain two very important factors of social life, authoritative responsibility and servitude, two factors which boys and girls must realise in their own persons before entering the larger arena of life.

Another contribution made by Arnold to school sociology was his recognition of the value of the house system. He saw clearly that the individual is liable to get swamped in the large school; therefore it was better to let him be associated with a smaller group—to let him belong to a "house"—while at the same time he could share the larger interests of the whole school. He could strive to improve the standard of his own particular house in intellectual pursuits, in games, and at the same time he could cheer for the school team when it went forth valiantly to do battle.

The social side of school life has developed considerably along these lines since Dr. Arnold's time, especially on the games' side, which has become a distinctive mark of English education. Games and games' clubs are now recognised as an important part of every school. The boys and girls realise the necessity for honour, justice, obedience, combination of labour, social service, and dependence, in a very personal and particularly convincing way, while at the same time they have the collective experience of account keeping, secretarial work, and general organisation which must necessarily devolve on the committee of a games' club. All these things have a value scarcely to be overestimated for the future member of the State.

All these developments of corporate life were concerned only with out-of-school organisations, and assumed that the scholar is not influenced by the social environment of the class-room. It was only after the introduction of handicrafts that there gradually came division of labour in the class-room, and attempts at the socialisation of the curriculum.

When manual work became a part of the curriculum it was soon discovered that in many cases a more effective piece of work could be carried out if several scholars linked their efforts than if only one worked alone. With "group work" came the sinking of self in the interests of the group.

Later this idea of group work was carried over into the more distinctively intellectual pursuits of the school; and we began to have collective study, teacher and children engaged upon—shall we be fashionable and call it a piece of "research"? Each member of the group contributed his mite of knowledge to help solve the problem of the class. The later developments of dramatisation in class-teaching, where the class acts its own original plays before writing them out, are also important in this connection.

Further developments of school life having a social bearing are the attempts to influence the outside community through direct instruction in the school. With this aim in view we find at different periods that teachers have included in their time-tables such subjects as domestic economy, mothercraft, civics, citizenship, and so forth.

A daring attempt at social schooling was carried out some years ago in America, and is well known as the George Junior Republic. The school is for children over twelve years of age, and its constitution imitates as closely as possible the constitution of the United States.

There is the boy president, whose veto can be set aside only by two-thirds' vote of the congress; there are courts, boy guards, a jail, a boy police force, etc. A very successful development of this has been carried out in England, viz., the Little Commonwealth, Dorsetshire. Both are attempts, and have proved very successful attempts, to reclaim the street hooligan and degenerate.

It is possible that such detailed organisation would be unnecessary where one was dealing with more normal material. For normal children the recent attempts at camp schooling are worthy of study as throwing valuable light on the question of corporate life.

Before examining in detail our present-day school community and the influence that it exerts, let us consider the community around the school, be it city or village, and its bearing on our work. Many of us are apt to think of this community only as interfering parents, and as such we try to ignore it, or if it won't be ignored, then we try to cultivate a thick skin. No doubt for persons engaged in any kind of public work a thick skin is a primary requisite, nevertheless it seems clear that where there is not active co-operation between school and parents, between school and community, the school labours under a severe disadvantage.

Undoubtedly the community, whether we desire it or not, exerts both directly and indirectly a very powerful influence on the school. The children bring into the school the language, the dialect, the accent, and the traditions prevailing in the district. This influence cannot be ignored, as anyone will agree who has tried to eradicate a local expression or accent in a school. There is a certain sentiment attaching to local expressions, and often those words and phrases, which we would scornfully sweep away with the conscious superiority of the twentieth century, are merely survivals of what in times gone by was current King's English.

But surely it is not desirable that we should ignore this influence; rather must we study it and build on it, for we must use the community and its traditions in every way we can. Not only the modern handicrafts, arts, customs, dress, amusements of the neighbourhood should be used, but those also which are traditional, everything in short which goes to make up the social group in which the school is placed. In the agricultural counties let farming and gardening form the pivot of the curriculum. Incidentally valuable work may be done in collecting weather records day by day; by monthly summaries of these average monthly temperatures, maximum and minimum rainfall, distribution of winds; when the early and late frosts occur, and a store of other information may be obtained. Let the children of Lancashire and Yorkshire learn to spin and weave; let the boys fashion the spinning wheel and hand loom in their school workshop; let the children dye the natural wool, using, not acid dyes, but the old peasant dyes, madder, lichen, heather, and seaweed, which are still used by the peasants of Ireland, Scotland and elsewhere to dye the wool from which they weave those matchless tweeds which no modern acid and machinery can rival.

Again, in the English towns, especially in those in the North, where the miracle plays were played by the townsfolk for the townsfolk in bygone ages, why should not the children write and act (or, as Mr. Caldwell Cook puts it, act first and write afterwards) miracle plays of their own? Is it not probable that they would find profit in such pursuits?

A flagrant example of how the environmental element may be neglected was reported to me some time ago from New Zealand: in several schools in that country art teaching aims at reproducing the art school ideals of this country, with the consequence that the rich realms of Maori art, with which children and teachers are surrounded, is disregarded.

In preserving and strengthening this vital relationship between the school and its environment the school festival is helpful. With this end in view a "civic day," to celebrate the beginning of the municipal year, was held at the Fielden Demon-

stration School, Manchester. The boys and girls prepared for the event beforehand, that they might be not merely emotionally stimulated for the moment, but also intellectually influenced. Parties of children visited the Town Hall and various municipal works, such as the city electrical works, tramway centre, and prepared accounts of these visits to be read to the school.

Such festivals—and the school party, Christmas, May Day and other festivals fall into the same category—may become channels of friendly intercourse between parents and the school. We must have the co-operation of parents, for school life is only a portion of the child's life, the home interests are large, and if the two are not linked there is a break in the child's life which is detrimental. The two never can be linked unless there is sympathetic understanding between parents and teachers. As a means of fostering such understanding the school party or parents' evening has in many schools proved valuable.

That the influence of the community may be utilised to the fullest, it is important that the teacher should live in the community; that is, that the rural school should be taught by the teacher who lives in the country, and cares for the things of the country, and can enter into and appreciate the joys and sorrows of country folk, and not by the townsman who travels daily to and from his school by train. Conversely the city school, if we must have city schools—many of us look to the day when most schooling will be done in the clean, free air of the country—should be staffed by townsfolk who care for and appreciate the best that town life can offer. This looks like an attempt to interfere with the liberty of the teacher, but if it were clearly recognised that good schooling is achieved not necessarily by the most efficient teacher, but by the one who has fullest understanding of the particular community of which the school forms a part, it is probable that those on whose shoulders the burden of the organisation of education rests would find it possible to utilise the individual preferences of the teachers they desire to place.

We must now turn our attention to our present-day school community, and consider the probable attitude of mind with which the younger generation will presently emerge from it to take its place in society. And here we must be careful to take note of the subconscious as well as the conscious ideals. Although we have awakened to the importance of corporate life in school, we have, as we have seen, confined real corporate life largely to out-of-school occupations. Naturally, the child does not regard these occupations, however much he may enjoy them, as the serious business for which he attends school. He comes to school to gain as much knowledge and skill as he can : to get value for his money. This is true of even the proverbial rascal, who plagues the teacher's life with his levity and inattention; this gentleman has no two opinions as to whose duty it is to make him learn. It is probably just as true of the children of the rich as of the children of the poor, though in the case of the former the monetary element being of less importance it will remain in the region of subconsciousness.

To strengthen this attitude to school life comes our system of marking and prize-giving; we apportion our ten marks, or seven, or six, as the case may be, not according to the amount of effort put forth by the child (that is difficult to estimate in terms of marks), but according to the achieved result. We give him a prize not because he has done good work, but because he has done better work than other people; indeed, where there is keen competition for a prize, girl and boy are wont to reckon up their chances of success in terms of the possible mistakes of their class-mates, and this not with any intention of being ungenerous, but as a matter of course. Then we finish up with a grand prize distribution, and have the Lord Mayor or some other important personage to make a speech commending the children who have been successful in beating the other members of their society. Is

it surprising if the youthful product is turned out determined, consciously or subconsciously, to get and not to give, to exploit rather than to share, to secure his own advancement through the failure of others? If, during the time the child is preparing for social life we prevent him having social experiences, we can hardly expect him to enter society and immediately develop social virtues.

We have tried to instruct youth in social virtues; we have given instruction in mothercraft (I have seen such a course excellently carried out at an elementary school in North London), in morals (under the direction of the Moral Education League), in civics, in citizenship (even a country school in Cheshire, which I visited not long since, according to its time-table taught "citizenship"!), in patriotism, and have not realised that the only way to prepare for social life is to engage in social life. Dewey likens our endeavour to train children in habits of social usefulness and serviceableness, apart from any existing social situation, to teaching the child to swim by going through the motions out of the water.

Unfortunately Froebel's attitude to the social life of the school has been swamped and lost to sight by his disciples' wholehearted, but misguided devotion to his "gifts and occupations." It would be equally unfortunate should Madame Montessori's really vital contributions to modern pedagogy be similarly swamped. It will be remembered how, in "The Education of Man," Froebel heaps contempt on the parent who, when the boy is young, does not allow him to engage in the work of his elders, and then when he is at an age to be really useful is surprised that he takes no interest in his father's work. His descriptions of his schools give many indications of a full, corporate life, and of daily acts of social serviceableness performed by the boys.

In this connection should be considered the debated question of co-education as opposed to the dual schools, or separate schools for boys and girls; also separate training colleges for men and women teachers. We wish men and women to engage in social intercourse, to promote mutual understanding and mutual helpfulness. Is it wise when they are preparing for life to compel them to spend a large portion of their lives in separate institutions? May not this breed unnatural reserve, suspicion, and distrust, rather than mutual understanding and helpfulness?

The most striking attempt at school life is, perhaps, the camp school. The Fielden Demonstration School carried out in several successive years a very successful summer school camp. A wooden hut and three bell tents provided shelter, and the boys and girls did all the cooking, washing, cleaning, keeping accounts, while lessons were leisure-time occupations. It was evident to all who studied the enterprise that there the children acutely realised in their own persons the essential conditions of the production of food, clothing, and shelter for mankind.

This is valuable as a starting point, but it is clear that we cannot—that it is undesirable that we should—become primitive men, though it is certainly valuable to relapse into these conditions periodically "lest we forget." The school of tomorrow will be a development of the camp school, a school fitted up by the children themselves, or according to plans worked out by them. Here is an opportunity for boy and girl to realise the essentials of good cooking, good furniture, good ornament, good pictures. The usual valuation of these things is made on a money basis; the rich buy expensive furniture, ornament, etc., and feel confident that their choice has been good because they have paid heavily in money; the poor spend as much money as they can, and the more they spend the better they presume is the article they have procured; they seem to want "to wallow in all the costly vulgarities" of the rich. They do not know that a home-made piece of furniture may cost less than the cheapest they can buy, and at the same time be more durable, more useful, and certainly more truly artistic, for things made with love and care to serve

useful purposes have ever been works of art.

The Little Commonwealth has pointed the way of reform and clearly demonstrated how much can be done in the way of allowing youth to direct its own affairs. The nearest approach to this kind of school which I have seen among elementary schools was at Mixenden, Halifax, where the mutually helpful and purposeful spirit engendered is apparent to even the casual observer.

In such a school we make both directly and indirectly for right living. The handicrafts do much to induce a right attitude to work and to explode the luxury tradition. A tradition has been handed down to us that the gentleman loafer and the lady who walks out of her dress leaving it on the floor for someone else to pick up, are people to be envied; nothing will so readily dispel the glamour of this tradition as purposeful work with our hands.

Through school handicrafts children may also gain some insight into the conditions of labour: the conditions under which many of our "common things" are necessarily or unnecessarily produced. To mention only two, may they not realise the conditions under which pottery and china is produced: the evils of lead poisoning both to the workers and the children to whom they give birth; and the conditions so detrimental to the lungs of the workers under which many of our commonest biscuits are produced? These sores of society exist largely because the people engaged in labour are hide-bound by tradition, and do not know that there is a way of escape; and the people outside the particular trade do not know that the abuses exist. Here, as elsewhere, it is the truth that shall make us free.

It also seems undesirable to emphasise class distinctions in school. This is sometimes unwittingly done on such occasions as harvest festivals, when the fruit, flowers, etc., are afterwards sent to the "poor"; and often collections are made in schools for various so-called charitable organisations. May this not foster a spirit of complacent patronage? May it not be that brotherly love and understanding engendered through the handicrafts is the truer charity? The war collections in the present crisis do not, of course, fall into the same category, for children are quick to realise that this is a national crisis and that different conditions must necessarily now prevail.

Above all, it behoves us at the present time furiously to think what attitude of mind "the younger generation" will have towards a cosmopolitan society. May it not depend on them whether or not in ten, twenty, or fifty years the world will again be plunged in a war more hideous and more gigantic than that in which we are now involved? Will they hasten the time when "the meek shall inherit the earth"? We have tried to prepare children to be good citizens by instructing them in the rules governing good citizenship, and we have failed. We have striven to prepare for "world citizenship" by instruction, and again we have disastrously failed. May it not be that the only way to prepare for universal brotherhood is to share in universal intercourse?

Rev. Henry Wotton. III.

A Pioneer in Child-Study.

By H. Holman, M.A.

At the end of the Narrative Wotton adds:—"The truth of this narrative, for matter of fact, I shall evidence by these honorary mentions some persons of worth and learning have left with me, under their own hands, concerning my child." The testators are: Mr. Ombler, a Fellow in Corpus Christi College; Mr. Philip Skippon (afterwards Sir Philip), a Member of the Royal Society, who lived at Wrentham; and Sir Thomas Browne, M.D.; each of whom had personal knowledge of the child's attainments. These written testimonies were all given in 1672. John Nichols writes, in his *Literary Anecdotes* (1812, vol. iv., p. 253):—"Having been favoured by a great-grandson of Dr. Wotton with the loan of the original book in

which these remarkable testimonials were entered, I shall here exhibit them in a regular series, as a literary curiosity." He then gives those mentioned above, with twenty others—all men of eminence (including the Bishop of Norwich)—whose testimonies were given between 1672 and 1680.

The after career of such a pupil is of more than curious interest, for it not only shows whether his early powers were temporary or permanent, but also gives some idea of the final value of his early training. Fortunately the history of his life has been fully recorded. His career was a distinguished, not to say brilliant, one, though by no means wholly phenomenal. Doubtless it would have been more crowned with worldly success had it not been that he was extremely thriftless and somewhat of a gay Lothario.

In an account of his life in *A New and General Biographical Dictionary* (1761-67) we read :—" His progress in learning was answerable to the expectations conceived of him; and Dr. Duport, the master of Magdalen-college, and Dean of Peterborough, has described it in an elegant copy of verses : ' In Gulielmum Wottonum stupendi ingenii et incomparabilis spei puerum vixdum duodecim annorum.' He then goes on to celebrate his skill in languages, not only in the Greek and Latin, which he understood perfectly, but also in the Hebrew, Syriac, Chaldee; his skill too in arts and sciences, in geography, logic, philosophy, mathematics, chronology."

John Nicols writes, in his *Literary Anecdotes* (1812) :—" What distinguished him from other men chiefly was his memory: his superiority seems to have lain in the strength of that faculty; for, by never forgetting anything, he became immensely learned and knowing; and, what is more, his learning (as one expresses it) was all in ready cash, which he was able to produce at sight. When he was very young he remembered the whole of almost any discourse he had heard, and often surprised a preacher with repeating his sermon to him. This first recommended him to bishop Lloyd, to whom he repeated one of his own sermons, as Dr. Burnet had engaged that he should. But above all, he had great humanity and friendliness of temper. His time and abilities were at the service of any person who was making advances in real learning... He was a great lover of etymology; and Mr. Thwaites, in his Saxon Grammar, takes notice of his skill and acuteness that way, which he was extremely well qualified for, by knowing most of the languages from East to West. Mr. John Chapman, chaplain to the archbishop of Canterbury (in 'Remarks upon the Letter to Dr. Waterland in relation to the natural account of Languages,' pag. 8, 9.) has done him the honour to place him in a list of great names after Bochart, Walton, Vossius, Scaliger, Duret, Heinsius, Selden, etc., all men of letters and tracers of languages."

While there is no doubt that he possessed an extraordinary memory, it certainly was not this that gave him his undoubted right to a place amongst the foremost scholars and literary and scientific men—he was a friend of Sir Isaac Newton —of his time. Anyone who has read his " Reflections upon Ancient and Modern Learning" cannot fail to recognise in it the acumen, tolerance, sanity, judiciousness, and learning, of a master mind, and will agree with Dr. Norman Moore's estimate that, " unlike most controversial writings, [it] is chiefly devoted to the clear statement of facts, and may still be read as the best summary of the discoveries in nature and physical science up to its date" (*The Dictionary of National Biography*). There can be no doubt but that he possessed reasoning powers of a high order. The beginnings of these were shown during his early years, for his father says of him that " when he saw a long or hard word he would encourage himself thereto with a more than ordinary resolution, and glory as much in the conquest of it as a soldier when he hath won the field." Again : " For he remembering some small pieces of the sense in the English, he many times—although I am sure he never had met with that Latin word before—when we had done some considerable part of the

verse, would give the English of it, the sense necessarily leading thereto... So apprehensive was he suddenly of the sense of the context, as that he could easily find out one and the other [of the concords], and easily join them together."

His career at Cambridge was remarkable. The Rev. Dr. J. H. Monk (Lord Bishop of Gloucester), in his *Life of Richard Bentley, D.D.* (1833), says of Wotton, who afterwards became a personal friend of, and collaborator with, Bentley—of whom it is said "no greater intellect than his has ever been devoted to the study and elucidation of ancient literature" (*The Cambridge History of English Literature*) :—"When he entered the University [he] was a child, and presents the best authenticated instance of a juvenile prodigy that I have ever found upon record... On his admission at Catherine Hall in his tenth year, the master, Dr. Eachard, the antagonist of Hobbes, recorded 'Gulielmus Wotton, infra decem annos, nec Hammondo nec Grotio secundus' ['William Wotton, under ten years, second to neither Hammond nor Grotius' —two distinguished scholars]. His surprising proficiency during his academical career is testified by some of the best scholars of that day : Dr. Paman the Public Orator, Dr. Duport the Dean of Peterborough, and Dr. Lynnet of Trinity College. When he proceeded Bachelor of Arts, he was acquainted with twelve languages ; and as there was no precedent for granting that degree to a boy of thirteen [actually twelve years five months], Dr. Humphrey Gower, one of the Caput [the then Council or ruling body of the University], thought fit to put upon record a notice of his proficiency in every species of literature, as a justification of the University. These testimonials, after making every abatement for the language of admiration, leave the fact little less than miraculous, and it is right to add that Wotton maintained in after life a reputation much higher than is generally the case with persons famed for precocious intellect in childhood."

It would appear that immediately after taking his degree he went to London and was introduced to some of the most learned and famous men of the day.

In *The Diary of John Evelyn,* under the date of July 6th, 1679, is this entry :— "There was now brought up to London a child, son of one Mr. Wotton, formerly amanuensis to Dr. Andrews, Bishop of Winton, who both read and perfectly understood Hebrew, Greek, Latin, Arabic, Syriac, and most of the modern languages ; disputed in divinity, law, and all the sciences ; was skilful in history, both ecclesiastical and profane; in politics; in a word, so universally and solidly learned at eleven years of age, that he was looked on as a miracle. Dr. Lloyd, one of the most learned divines of this nation in all sorts of literature, with Dr. Burnet, who had severely examined him, came away astonished, and they told me they did not believe there had the like appeared in the world. He had only been instructed by his father, who, being himself a learned person, confessed that his son knew all that he himself knew. But, what was more admirable than his vast memory, was his judgment and invention, he being tried with divers hard questions, which required maturity of thought and experience. He was also dexterous in chronology, antiquities, mathematics. In sum, an *intellectus universalis,* beyond all that we read of Picus Mirandola, and other precocious wits, and yet withal a very humble child."

In the winter following the taking of his B.A. he was invited to London by Dr. Gilbert Burnet (afterwards Bishop of Salisbury), then preacher at the Rolls, who introduced him to many learned men, among whom was Dr. William Lloyd, Bishop of St. Asaph. The bishop was so highly pleased with him that he took him to St. Asaph, the next summer, to assist him in making a catalogue of his library. On his return to London Dr. Turner (afterwards Bishop of Ely) procured him a fellowship of St. John's College, Cambridge.

He graduated M.A. in 1683, and B.D. in 1691, having meanwhile been elected F.R.S. in 1687. In the same year as he took his B.D. Bishop Lloyd gave him the

sinecure of Llandrillo, Denbighshire, and he was appointed chaplain to the Earl of Nottingham, a Secretary of State, who preferred him to the rectory of Middleton-Keynes, Buckinghamshire, in 1693.

In 1694 he was acting as tutor to a son of Mr. Finch of Wotton, Surrey, and paying friendly visits to Evelyn. In a letter dated July 7th, 1694, Evelyn writes thus to Pepys :—" Some kind genius directed the most learned Dr. Wotton to give me a visit, and an inestimable present too, his Reflections upon Ancient and Mod. Learning...an universally learned, and indeed extraordinary person. This is he whom I have sometimes mentioned to you, for one of the miracles of the age for his early and vast comprehension. Set him down, then, in your Albo, among the Gales and Bentleys, as you will certainly do as soon as you know him. I assure you he is no less in the pulpit and conversation, than in his book and writing, with great modesty. Judge, then, what an unexpected blessing is befallen me in the wilderness [at Wotton, Surrey], and with what manna I am fed, when he does me the kindness to come from Albery, where he has the care of a hopeful young son of Mr. Finch's, to Wotton, his namesake, as he calls it." Earlier in the same year (June 14th) he writes in his diary :—" The public Fast. Mr. Wotton, that extraordinarily learned young man, preached excellently." This was at Wotton, where Evelyn lived with his brother, at Wotton House, the family seat.

It was during this same year that he wrote the book which brought him most into prominence amongst the learned and famous men of the day. Sir William Temple had written an " Essay on Ancient and Modern Learning," in which he maintained that the former was very superior to the latter. In the course of the essay he took occasion to indulge in sarcasm aimed at the then recently established Royal Society. Wotton replied to Sir W. Temple in a pamphlet entitled " Reflections upon Ancient and Modern Learning," in which he upheld the learning of the moderns as superior to that of the ancients, and defended the Royal Society against Sir W. Temple's attack. The controversy was joined in by Bentley, Boyle, and Swift (who was then living with, and under the patronage of, Sir W. Temple), and is one of the most famous in the history of literature. Swift attacked Wotton, by name, both in his *Battle of the Books* and *Tale of a Tub*. In the former he refers to him as " W-tt-n a young hero, whom an unknown father of mortal race, begot by stolen embraces with this goddess [Criticism]...[who] privately ordered two of her beloved children, *Dulness* and *Ill-Manners*, closely to attend his person in all encounters." Wotton took all this in good temper, and replied to it with dignity and effect in " A Defence of the Reflections upon Ancient and Modern Learning," published in 1705.

He wrote many other works, some of them of great learning, during the remainder of his life. Chief among these are :—" The History of Rome" (1701), which was recommended by Leibnitz to the Electoral Prince of Hanover; " Miscellaneous Discourses relating to the traditions and usages of the Scribes and Pharisees " two volumes (1718), which was for a long time the standard work on the subject; and Cyfreithjeu Hywel Dda, ac Erail" (published in 1733—after his death), an account of Welsh laws.

In 1705 Bishop Burnet gave him a prebend in Salisbury Cathedral, and Archbishop Tenison (Canterbury) made him a D.D. in 1707. In his later years he retired to his Welsh living owing to pecuniary difficulties—John Nichols says : " He had not a grain of œconomy" (*Anecdotes of William Bowyer*, 1782). While in Wales a serious illness began to develop, and he went to live with his son-in-law, the Rev. William Clarke, the Rector of Buxted, Sussex. Here he died on February 13th, 1726, and was buried in the parish church. Strange to say, both the *Encyclopædia Britannica* and the *National Dictionary of Biography* state—probably copying a mistake made in an old biography—that he was buried at Buxted, Essex. There is no Buxted in Essex, and the present Rector of Buxted, Sussex (Rev. G. S. Pownall)

has been good enough to verify the fact that the grave is in the parish church there.

(*To be continued.*)

Parent Educators.

By Professor Bidart.

Translated by Miss M. S. Ryan, B.A.

3. *The Method of Counteracting Evil Tendencies.* "I am determined to save my child from being a slave to his passions; I feel that that is the greatest benefit I can give him."

(1) "The best way of destroying an evil passion is not to let it come to birth." A paradox, but sound sense. The parent must observe his child closely; behind the fault that he sees, he must trace that which gives rise to it, he must discover that evil tendency which may be only just developing, and he must stamp it out before it has time to satisfy itself and become stronger; if, in spite of all his efforts, the tendency has manifested itself, then it is the parent's duty to see that it is thwarted in every direction, and that all influences tending to excite or develop it are removed. Just as the only way of strengthening oneself in a virtue is to practise it, so there is only one way of overcoming a vice, namely, never to give it satisfaction, to let it perish of inanition. This treatment will prove itself more efficacious than all the punishments and all the counsels that can be conceived.

(2) Let us suppose, however, that some particular fault has already developed. Every fault comes from an inclination for or against some thing or person, from love or hate, from a liking or a dislike. Hence the parent must find the origin of the fault and attack it at its source.

But, one may ask, is it always possible to stamp out a fault at its source? You cannot dry up a spring of water, you can only change its direction. So in the moral order, you cannot destroy the child's inclinations, indeed, it would be disastrous if you could! The child must like and dislike. What the parent must do is to cherish and strengthen whatever is good in the tendency and weaken whatever is bad, and thus gradually stifle the bad under the good by bringing the two tendencies into opposition in such a way that victory is with the good.

Every vice is akin to some virtue and *vice versâ*. For instance, a child is deceitful. That is a fault; you may say it is the virtue of prudence carried to an excess. Another child is wanting in candour. Candour is a good quality, but when carried to excess in another child it becomes impertinence. And so with any fault—so that what the parent has to do in his training is to look out for the deficiency and supplement it, or discover the excess and diminish it.

Some dispositions are complacent, others are arrogant. The former must learn the lesson of honour; as to the latter, it is necessary to break down their reserve and their pride by luring them to pleasure, humanising them by making them feel the joy of living and loving.

To gain a thorough knowledge of a child's disposition it is necessary to observe it attentively and continually in all its manifestations, *e.g.*, in games, in play with its toys or dolls, in its chatter with its playmates, in its talks with grown-ups, etc. Then we must make allowances for inherited tendencies. I, myself, the child's father, what are my faults? What are my good qualities? What about the child's mother, his grand-parents? What is the principal characteristic of the family? What may he have inherited from us all?

One child may be surly and ill-tempered; it is his nature. The trouble is partly physical, and must be cured by appropriate treatment. Another child is by fits and starts brooding or uproarious. You must get his health right if you want him to be even-tempered. Certain faults must be treated as if they were diseases, a physical as well as moral treatment is required. This is the case with greediness and self-indulgence, timidity and anger, laziness and violence.

A child may happen to be selfish, awkward and untidy, and a story-teller! Do

not suppose that you can correct all these faults at once, you will only get over the difficulties one by one. Don't you see that if the child is awkward and untidy and tells stories, it is most probably because he is selfish? Then attack the selfishness first, that is at the root of the other faults. Uproot a tree, the branches will soon wither.

(3) Lastly, let us suppose that the evil tendency has still further developed and has become an evil passion. It is a difficult matter to make a frontal attack against a passion; like a raging torrent, it will burst through every obstacle and its course become more violent. It is better gently to try to divert it by directing it towards other objects, but substituting for it a more noble and innocent passion. You can, of course, figuratively speaking, take a violent leap, and hope that the distance is too great to cast even a backward glance, but you expose yourself to a great danger, in the moral order, for the very greatness of the effort may exhaust your strength, and consequently leave you incapable of resistance in the clutches of the passion which seizes and binds you more closely than ever. It is wise to proceed gradually, to make a slight effort daily, and with each effort some slight progress. "To attain to a new virtue there are two occasions one may choose (*a*) the moment when one is best disposed, so that one is able to make good headway; (*b*) the moment when one is least disposed, so that one is obliged to put forth the whole strength of the will."

4. *Method of inducing the Child to take an Interest in Correcting his own Faults.* The following is an excellent method and one not widely known. When your child can read and can reason for himself, show him a notebook and say to him: "In this little book we shall write down the history of your life, all your faults and failings, and the efforts you make to conquer them. When there is a blank page it will mean that there is nothing to record, you have not fallen. Don't think this is a trap for you. You know you have faults. We have shown you your weakness and your strength. We want to help you to conquer your weakness, but you must help too, for without you we can do nothing." And you will note down in the book his failures and his efforts to avoid them, in the order of their occurrence; you will neither exaggerate nor extenuate; you will give neither blame nor praise. You will merely record the fact, for instance:—

"June 10th, 19... George had some work to do. He went and hid himself."

"June 14th, 19... Because his picture-book was not given up to him quickly enough, George kicked his little brother who is three years younger than he is."

This little book is kept in a certain place where the child can go to look at it whenever he likes. By degrees a big thought penetrates his mind—it is that everything persists, that everything counts, that nothing is without importance in our actions, and that everything has its influence on the future... Then he will begin to watch his own actions. Say to him: "Tell us what to do to help you not to commit such-and-such a fault; we will do whatever you ask.

Correspondence.

THE PERCEPTION OF NUMBER.

Sir,—In the December number of the Journal (viii., 141) Mrs. Lucas says that at the age of four years nine months her boy could "see" the number of seven things.

I am sceptical, unless the boy is very exceptional. My own experience of adults is that the ordinary limit of the number that can be seen without counting is four, though five can be seen if the things are arranged in some particular way. Beyond four the number is found by addition, *e.g.*, of three and two, or by counting by ones. J. Sully, quoting Sir W. Hamilton, suggests (*Outlines of Psychology*, 7th edition, 1891, p. 192) that the greatest number that can be recognised is six. I think that even this is too high; the power to "distinctly attend to" six objects does not imply the power to know, without counting, that their number is six.

The experiments summarised by Mrs. Lucas on p. 143 show that the boy found out quickly the number of things required, up to five. I do not think it is proved that the number was seen without counting. It is quite possible that the boy remembered the five as three plus two, the three and the two separately.

If an adult cannot usually see more than four, a child cannot be expected to see more than two

or three. The pedagogical bearing of this is (*Enc. Brit.*, ii., 527, § 22) that for young children ten is much too large a number to use as the basis of a scale of notation. We must treat ten as two 5's or five 2's, so that seven will be 5 + 2 or 2 + 2 + 2 + 1.

Yours faithfully,
W. F. SHEPPARD.

Child-Study Association and the Constituent Societies.

The Child-Study Association.—The meeting held during the Conference of Educational Associations at the London University on Wednesday, January 5th, was well attended. Sir John Cockburn was in the chair, and Dr. Saleeby gave an address on "Saving the Future." An excellent discussion followed the address.

The Birmingham Society.—The following meetings are to be held this month:—

February 1st.—Presidential Address; Mrs. George Cadbury.

February 15th.—Subject to be arranged. Miss R. Sidgwick, M.A.

The meetings will be held in the King Edward's High School, New Street, at 6 p.m.

Notices and News.

The Society for the Study of Orthopsychics has arranged four courses of lectures, during January, February, and March this year (Wednesdays), on (1) "Landmarks in the Development of Mind," (2) "Elementary Human Physiology," (3) "The Instincts," and (4) "Normal (Individual) Psychology"; and (5) "Psychology of the Moral Consciousness," during April, May and June. Each course consists of from nine to eleven lectures, which are to be given by highly competent and distinguished persons. The fee for each course is 15s., and for each lecture 2s. Members of the Child-Study Society can get tickets at half-price, on application to Dr. Ll. Wynn Jones, 30, Brunswick Square, London, W.C.

The London County Council has arranged for a series of eight lectures on "The Psychology of Explanation" by Professor Adams. The lectures will be given at the London Day Training College, Southampton Row, W.C., on Saturdays at 11.30. They commenced on January 15th. Applications to be made to the Secretary of the College.

Miss Anna Snell.—Many of our readers will regret to hear of the death of Miss Anna Snell, the first Principal of the Manchester Kindergarten College, which occurred last August. She was a close friend of Frau Froebel, one of the most devoted followers of Froebel, and an unselfish and devoted pioneer in the teaching of children on kindergarten lines, and in the training of students as teachers.

Reviews.

The Education of Karl Witte. Edited by H. A. BRUCE. Pp. xl., 312. G. G. Harrap. Price 4s. 6d. net.

The doctrine of giving the child no actual teaching for his first five or six years is one to which most of us more or less subscribe. Certainly the modern tendency has been strongly in favour of letting very young children's brains "lie fallow." This most remarkable book, recently translated for the first time, combats most strikingly these views, and makes us pause to examine afresh the grounds for this belief. It is a most stimulating book, and the translator, if, as he says, he has had to omit and abridge many rather wearisome dissertations in the original, has certainly succeeded in that there is not a single dull page.

Karl Witte, the elder, was a pastor in a German village, and this book, written nearly a hundred years ago, is his account of the education of his boy. He was not concerned to make a learned man of him, but to develop to the full his mental, physical and moral powers. He seems, indeed, to have succeeded most wonderfully. The boy not only showed a remarkable mental development, but he grew up strong and energetic, happy, fond of play and of young companions, unswervingly honest and modest. The latter virtue is remarkable when one remembers that he became a doctor of philosophy at the age of fourteen, and at sixteen joined the teaching staff of the University of Berlin.

The author describes at length the first steps he took, before the child could talk, to lay the foundations of knowledge and to train the child's powers in the right directions. He gives a full account of the child's teaching, his food, his games and toys, also the way in which he passed his days. Later on come detailed descriptions of how the boy acquired French, English, German, Italian, Latin and Greek, all of which he could read with ease when he was nine. Much of the book is devoted to a description of the father's system of moral training, which seems to have been very successful.

Everyone interested in early education should certainly read this book. His admiration will be divided between the illustrious son and the father, who, so many years ago—though denied the help which modern anthropology, psychology and kindred sciences have given us—saw clearly into many of the problems which bewilder us to-day.

In translating this book H. A. Bruce has done a most valuable piece of work and one which will be appreciated by all who deal with young children. The question of just where to begin lessons is a practical one that is perpetually being answered, and this book makes us feel that we may possibly be quite wrong in our prevalent habit of neglecting very early mental training. There is no need to conclude hastily that Karl Witte's education was absolutely right, and that we are wholly wrong. The book simply relates one ex-

periment and its result. But, as the editor points out in his "Foreword," the experiment is by no means unique, and in the light of this and others we shall do well very gravely to reconsider our grounds for abstaining from systematically and seriously teaching a child during his very early years.

The Dawn of Religion in the Mind of the Child. By EDITH E. READ MUMFORD, M.A. Pp. xi., 111. Longmans. Price 1s. 6d. net.

All those who can unquestioningly accept all the assumptions which Mrs. Mumford makes will undoubtedly enjoy her book greatly, for it is written with an enthusiasm and eloquence which they will find irresistibly stimulating and satisfying. For those of a critical and logical cast of mind the result of reading the book will be very different. They will, we think, find it difficult to accept her analogies, or reconcile her arguments with one another. For example, in summing up her case she suggests that children can be helped "so to interpret Life"—"a solution of the world problem" that all is right with the world in spite of sin and suffering—by comparing it with compulsory school cricket, in which "each player, whether good or bad, learns, at any rate, to play for his side rather than for himself. It therefore follows that, when each one, strong or weak, puts his whole heart into the game, all goes smoothly and harmoniously enough, in spite of uneven handicaps" (p. 104). To those who know the game this is a caricature of the facts; and it entirely leaves out of account the opposing side. Throughout her book the author either deliberately ignores, or entirely forgets, the opposition.

As to the consistency of the arguments, we have the following: "Our religious teaching must begin with 'telling'; but mere 'telling' is not teaching"; telling about God and teaching a simple prayer "is but a poor substitute for leading him to 'know' God" (p. 16); yet as a result of telling "day by day, he comes to 'know' more of God." Again, the author appears to us simply to evade problems which she seems to believe she is solving. To "bring home to him the thought that it is possible for him to hold communion with an invisible spirit world" (*i.e.*, God) a fairy tale is told, in which the wind tells stories to a boy; the boy thinks whether fairies would like to see him lazy and sulky; the wind tells him that the fairies are helping him, and "he *knew* that they were near"; a bundle of sticks he is carrying seems to lose its weight; and "*The fairies had been keeping him company*!" (pp. 40-42). That is: take it for granted that the child already knows he has communion with gods—which fairies are in effect assumed to be, and as they were originally believed to be—and it is not difficult to explain to that child that he can commune with a God. Truly it ought not to be; for the greater difficulty surely includes the lesser. But is not this a case of explaining one unknown by another unknown?

A sceptical child of six asks: "Could God make that wardrobe?" She is told that unless God gave power—skill is not mentioned—to cut down trees, and make and use tools, the wardrobe could not be made by man. This evasion of the direct issue leads to immediate reverence and prayer on the part of the child, and the realisation of "wonderful significance" in the fact that she cannot move her little finger without God (p. 24). A little boy asks his mother what moves the branches. He is told to wave his arm like the branches. "'What makes your arm move, laddie?' she questions; and then he understands that, just as an unseen force moves his own arm, so an unseen force is moving the trees...and thus is born in him the first consciousness of the reality of the Unseen" (p. 14). We fail to see the sequence, except by begging the question; and we don't think the child is capable of such sudden and phenomenal developments.

The book is a strange mixture of fact with fancy, religious assumptions with psychological truths, and common sense with mysticism.

Religious, Civic, and Moral Education. "By ONE INSIDE." Pp. 34. Copies 6d. each, from W. J. Saunders, B.Sc., 64, High Street, London, W.

This is an original, daring and sparkling attack on the established conventions concerning religious education in schools, and the careful setting forth of "A new solution of the 'Religious Difficulty in Schools' for after the War"—it is dated "*Wartime*, 1916." The writer calls himself "a minor educationist," but those readers to whom his speech bewrayeth him will know him as a major one. It is lively reading, and will cause lively thinking. The author requests his readers to fill up a form given at the end of the pamphlet, say whether they agree with his new solution, and with what qualifications, or disagree, and on what grounds. We will not therefore risk prejudicing the reader's conclusions by giving our views, but heartily recommend him to study it for delight and for action.

The Uplands Circular. No. 2. Pp. 48. William Morris Press, Ltd., 42, Albert Street, Manchester. Price 6d.

An interesting number of the new Uplands Association, founded by Professor J. J. Findlay and others. It contains articles on:—The Way of Reform in Education, Schools of To-morrow, Rhythm in Art and Education, Suggestions for Study (a) in Psychology and (b) of the Social Aspects of Education. All are well worth reading.

PUBLICATIONS RECEIVED.—*Journal of Education; Child-Life; Parents' Review; Secondary Education; Journal of Experimental Pedagogy; Educational Review* (U.S.A.); *Child-Life* (U.S.A.); *School and Society* (U.S.A.); *The Pedagogical Seminary* (U.S.A.); *The Journal of Educational Psychology* (U.S.A.); *The Social Reform Advocate* (Buenos Aires); *School and Life* (Petrograd); *L'Intermédiaire des Educateurs* (Geneva).

Child-Study.

The Journal of the Child-Study Association.

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Saving the Future.

A Report of a Lecture by C. W. SALEEBY, M.D., F.R.S. (EDIN.), *and a Discussion.*

The Hon. Sir John A. Cockburn, K.C.M.G, M.D., presided on January 5th at the University of London over a meeting of the Child-Study Association, held in connection with the Conference of Educational Associations, when Dr. C. W. Saleeby gave an address on "Saving the Future."

The Chairman, in introducing the lecturer, said Dr. Saleeby had identified himself with the greatest cause any man could identify himself with—that of the solidarity of their race and of its future. It was one of the signs of the times that questions of this sort were now receiving so much attention. It was a sign of that corporate consciousness to which they had all risen lately. A few years ago it was not so, and men looked on the world as a sort of place in which to enjoy themselves merely, and they left those who were to come after them to look after themselves. They had now got away from all that, and they were regarding life as a very solemn trust. Their lives were strictly entailed, and it was a deadly racial sin for any man to squander his heritage and depreciate the stock to which he belonged.

Dr. Saleeby said he addressed an audience a few years ago in that hall on a somewhat similar occasion, and then, rightly or wrongly, they were interesting themselves in questions of the inheritance of eye colour in mankind. They compared it with the inheritance of colour in the sweet pea, and considered whether from this they could draw any conclusion as to the inheritance of epilepsy and mental deficiency. They then thought rightly that these were matters of importance and relative to the future welfare of the race, but they did not then know what was coming upon them. They met now after a year wholly without parallel for its calamitous consequences upon their race. Nothing in their records could possibly be named to compare with the vital statistics of 1915. Taking the ratio from the latest figures announced by Mr. Asquith, their losses were ninety thousand men who physically and psychologically were the elect of the nation. That was half as much again as the customary annual death rate from their deadliest disease, tuberculosis, and half as much again as the figure to be allotted to alcohol and all its consequences.

Along with this they had the lowest birth rate; a raised civilian death rate; an abominable rise in the infant mortality, although the nation had allocated more money for the children of its soldiers than in any previous campaign; and they might add, by way of irony, a rise in the marriage rate. These facts mainly depended on military processes, which, to complete the tale, had the effect of immensely enlarging the Empire, the life of which was being depleted as they lost their soldiers—the fittest fathers of their imperial future—and by that very process their imperial responsibilities for the future were increased.

He asked them to look at the map in which he had tried to indicate the enormous size of their Empire, and notably as compared with the sizes of other empires. Further, he had tried to indicate how extraordinarily empty this immense Empire was. They found a state of affairs with regard to population which was without parallel in history. The population of the United Kingdom was forty-five millions as compared with the seventy millions

population of Germany. If they took the whole of their population in the Empire they could only add fifteen millions to that forty-five millions. Whilst they were three hundred and seventy-five to the square mile in the British Isles, there was only one to a single mile in Australia, and two to the square mile in Canada. It was a peculiar fact that, apart from India, it was an almost empty empire; and that empire was getting bigger by the very processes which were taking so much of their best lives.

Now, in the first place, he thought it was a duty to assert public disapproval of the opinion that they should have no babies at present, and that there would be no room for them if they had them. He was a personal friend of the author of the pamphlet he had in his hand, in which it was advocated that there should be no more children till peace and prosperity returned. The public teaching of the opinion that they should have no more babies until the war was over was equivalent to a counsel of national and imperial suicide. The argument put forward by students of economics—as to the genuineness of whose intentions he made no question—was based on the assertion that there was really only just enough food to go round, and that if they produced more babies, and if people like Dr. Pritchard and others saved the babies they had, then another person must perish for lack of food.

Briefly, this was nonsense. The Dominions' Royal Commission had just published an extraordinarily interesting memorandum, which showed that, as regarded increase of food products and increase of population, the British Empire stood out as a most signal exception. The increase in wheat production during the decade 1901-11 was seventy-five per cent., whilst the increase of population in the same period was eleven per cent.; and bread was still the staff of life. But, further, the official estimate of the production of wheat in Canada this year was that it would be fifty per cent. over that of 1911. In the face of such facts from Canada, which did not know what to do with the wheat it produced, the proposition that to bring babies into the world or to save them meant that someone else had to die for lack of food was nothing but preposterous and dangerous nonsense.

His next point was with regard to infantile mortality, and that was to be regarded as a phenomenon ante-natal and post-natal. One of the most fertile sources of error in this respect, in so many people's minds, was the tendency to assume that the beginning of the baby was its birth, and that the birth rate was absolutely the beginning rate. But the birth rate had properly to be thought of as the survival rate from the conception rate, and really every life that was conceived ought at least to last until it could come into the world, as they called it, and a great deal longer. But in the interval between conception and birth there was a wastage which numerically was immense. In fact modern students, like Mrs. Scharlieb, Dr. Routh, Dr. Ballantyne, and others, said the destruction of life before birth was as large as, or larger than, the destruction in the first post-natal or infantile year. If they reckoned that they killed about one hundred thousand babies in the first post-natal year, the figure of deaths before birth was put by these modern students at something like one hundred and twenty thousand per annum.

Further, this destruction—for destruction it was—had a one-sided sexual incidence. It was very largely a male infanticide. According to the 1911 census figures there were about one and a quarter million more women than men in these islands over the age of twenty-one.

Then came this military death rate of ninety thousand per annum up to date. This would leave as one of the legacies of this dreadful war a greatly increased disproportion between the sexes in a country which called itself monogamous. In the country, furthermore, they saw constantly going on the destruction of infants and of unborn infants which fell much more heavily on males than on females. It was a thing which people in general could never quite believe, but it was so. They played

on the male and female with equal forces of injury, and it was the muscular, bigger, more brutal, more aggressive male which collapsed. The females recovered, for they could resist more—nature made the female in order that she might be able to bear the future. In countries where still-births were statistically attended to they had figures showing one hundred and forty males to one hundred females. Therefore this destruction was playing into the hands of the military destruction of males only, and into the hands of that sexual disproportion with which they entered the war.

He suggested that here was a very cogent reason for trying to avert the infanticide in a nation which needed, and would need, so many males, in order to equalise the proportion of the sexes, which must surely on every ground be a natural and happier condition for national existence and maintenance.

These processes which were going on were not like the movements of Jupiter and Venus, which they could study and compute but could not control, but they were phenomena of which they were part, and within limits they could do almost what they pleased with them. They had allowed a great deal of money for the mothers of the children of the men fighting for them, yet infant mortality had gone up, and there was no room to doubt that maternal drinking was the cause. He thought it useful to assert that attempts to solve the recruiting problems which had been brought upon them quickly, out of hand, by rapidly advising prompt measures, were bound to fail by the nature of the case.

In their time the Boer War brought the subject to their attention. The number of recruits that were damaged engaged the attention of Sir Frederick Maurice, and then that of a Royal Commission, and so forth. The first idea was that by physically training the recruit he would become right. But it was found that lost teeth did not return, and bow legs did not straighten. Then the doctor went into the schools for the first time. Dr. Leslie Mackenzie of Edinburgh found a dreadful state of things in the schools. To-day they had medical inspection of children and medical treatment more or less, and they were beginning to open dental clinics, and so forth.

In London two-thirds of the children entering the schools were found to have preventable physical defects. Thus they got back to that very neglected child, whom he always wanted to call the home child, because home was its place. He meant the child between one and five years of age, for whom practically no agencies of any kind existed, whom practically no one systematically studied, to whom no associations devoted themselves, and yet who was a necessary link in the vital chain which constituted the history of every one of them.

And so they came to infant mortality, which for a dozen years they had been studying, and which they had most notably reduced within the present century. In fifteen years or so they had got down infantile mortality in this country approximately by one-third. This was not bad. On a closer study of the figures the interesting fact emerged that the decrease in the mortality was mostly in the case of children in the latter part of the infantile year—the nine, ten and twelve months' old baby. They had saved the baby by the reduction of infantile diarrhœa; by having motor cars instead of horses in the streets; and, of course, by the many charitable and municipal agencies. In the later period there had been a recent cutting down of the mortality by twenty-five per cent., but in the first three months the cutting down had only been to the extent of six per cent.

They had practically failed to touch the infantile mortality in the very young baby, and the reason was that even then they had not begun at the beginning. All methods for dealing with the child might be put under two simple categories. They were: the method, or series of methods, which tried to save the baby apart from its mother; and the methods which tried to save the baby through its mother. By the first method they got their results more promptly, for they did not have the prob-

lem of educating the mother or relieving her defects. They did not have to face all the difficulties of permitting natural feeding and so forth. They took the infant and provided it with municipal sterilised milk, which by a flight of fancy they called humanised, although it came from the cow; and they hoped in this fashion to save the baby. They provided a crêche or other means whereby the infant was prevented from falling into the fire, and was kept warm whilst the mother was working in a factory, and they saved babies up to a point. Thus far they went and no further because, although that method was better than a worse one, it could only be called good in default of the real method, which was to save the babies through the natural saviours of babies, who were the mothers.

When they tried to save the babies through their mothers, and only then, would they solve the problem of infant mortality in the first three months, which all their efforts in the past twelve years had practically failed to deal with at all. This could only be done by a recognition of the truth, about which there was nothing nasty except to nasty minds, that the nine months before their birth was a part of the history of a human being as vital and essential as any other. Indeed more so, because as the twig was bent the tree was inclined.

He had in his hands a little scrap of paper which they got through the House of Commons whilst the members, he supposed, were at dinner. It was the Notification of Births [Extension] Act, which came into force last year, and under which local authorities who were compelled by an educated public opinion would be enabled to save enormous numbers of infants in the coming year. But there was no compulsion about the Act except so far as mere notification was concerned, and therefore if they wanted to do anything to save the infant after its birth, the local authority must make that decision for itself, and it could only be brought to do so by the educated public opinion of the locality. It was the duty of everyone with a civic sense, and who claimed to have any patriotism at all, to see that infants were not being killed by neglect to carry out the provisions which this admirable little Act made possible. It followed along the principle of saving the infant through its mother, which he took to be nature's principle.

This was a principle which men had so constantly tried to avoid. The first one to do this was Plato, who said that all the babies were to be taken from their mothers, and shuffled so that no mother should be able to recognise her own infant—thereby eliminating that love of the mother for her own babe which he regarded as a source of serious danger to the republic. Moses practised the idea of saving the babies through their mothers, and he belonged to a race which had defied all attempts to suppress it. When he was a student under Dr. Ballantyne that pioneer was taking the greatest interest in infants born damaged and deformed, and so on, and he was advised by his seniors that he was wasting his time and nothing was to be got from it. But he persisted in going on, and from him they had the idea of the ante-natal care of the child.

Well, Dr. Ballantyne had come to his reward. When he (the lecturer) was resident in Edinburgh Maternity Hospital the first ante-natal bed there was inaugurated, and had to be occupied by expectant mothers who had some claims for special medical care. They had now an ante-natal ward, and he had a letter from Dr. Ballantyne in which he told him of the amazing figures which would shortly be published in the *British Medical Journal*, showing the astonishingly small proportion of mothers who need die at child birth if their condition was attended to in time.

He would say one other word about the causation of infant mortality. People dogmatised about it and said the cause was so-and-so, but he believed the causes of infantile mortality were almost as numerous as the causes of mortality at other ages. He did not even like to hear it said, as Mr. Walter Long said at the great Guildhall meeting, that poverty was not a cause. It

was and it was not. Poverty did not cause infantile mortality, but poverty which meant ignorance did cause it, as did that which meant that mothers had to live next door to dirt and flies which caused infantile mortality, at all events in the non-breast fed infants.

And then he wanted to combat the assertion which was being made in the name of eugenics, that the deaths of infants were a natural and healthy process; that it was a rather merciful elimination of infants not fit to live. That was not only untrue, but he ventured to call it the lie of lies. It was the most absolutely false and pernicious statement which was in common circulation to-day. They were told that it was the Darwinian process of natural selection, and that if these children were kept alive by fanatical persons who thought it was their business to interfere with the great Dame Nature, it only meant that they would die a little later. They were told that the rate of child death and child damage would rise if they interfered with a process which, it was asserted, mercifully eliminated these inferior infants. The answer to this assertion, for which Prof. Karl Pearson was chiefly responsible, was that it turned out to be exactly the reverse. Dr. Newsholme had demonstrated up to the hilt that there was a natural proportion between infantile mortality and infantile damage, and that infantile mortality was only the most complete consequence of causes which damaged far more infants than they succeeded in killing. Therefore if they had a low infantile mortality they had a low child mortality, a low proportion of damaged children, and a low proportion of unfit recruits.

He had formerly made the assertion about recruits without figures, but now Mr. Hughes, the Prime Minister of Australia, had received a report from the Commonwealth Statistician showing that the medical men who examined recruits found a splendid proportion of fit young men in Australia, where they had an extremely low infantile mortality.

Further, so far as the infants actually killed were concerned, it was not true to say it was due to their heredity, and that they were better dead. No one had the right to assert that it was heredity until he had excluded ante-natal infection and ante-natal intoxication. If he injected a deadly microbe into a child a month or a year old, or into an adult of fifty years, that person was infected with the disease and died, but it was not inherited. If he injected the same microbe into a baby one second, one minute, or one month before birth was that the result of heredity? If he dosed a baby with gin before its birth, and when it was born it died and had gin-drinker's liver, that was intoxication and not heredity. There were no figures in connection with the Eugenics' Laboratory or anywhere else which recognised the existence of the ante-natal period.

It was necessary to distinguish between heredity—what was given in the genetic cells which united to form the new individual—and ante-natal environment and mal-nutrition. He did plead to them to think of birth as an epoch in the history of the individual, and to realise that there was an ante-natal environment which was of importance. Women, of course, because they were women, would understand this better, but, unfortunately, the whole thing had been so largely in the hands of men. He entirely agreed with the doctrine that there ought to be more women on municipal bodies, to help in this matter, and he was also of opinion that this subject of babies, which was looked on as a sentimental and domestic subject with a a nice pious flavour, was a subject not only for mothers, but one for the supposed more spacious intellects of men.

Now what results were they to expect if they attended to this matter? One was fewer rejected recruits; and in this connection he had got the figures from Australia. For the last seventeen months doctors had been rejecting would-be soldiers, and this was largely the result of their neglect of infancy in 1890 to 1895.

In Germany the infantile mortality was twice as high as in this country, and he had reckoned ever since the beginning of the war that she would proportionately

sooner come to the end of her fit males, and he believed the records were justifying that statement. They knew that there was a far higher proportion of physically unfit men in Germany than there were in this country.

He wanted to insist that it became an essential duty for them to recognise as cardinal facts in the making or unmaking of their national future certain agents, which in the teaching of his great master, Sir Francis Galton, were never mentioned. Eugenists failed to recognise one of the most important factors of all in national destiny, which was the influence of what he called racial poisons. By racial poisons he meant things which were capable of spoiling what should have been the finest of good stock. For instance, a child infected before its birth with certain diseases would be spoilt, although its parents and its grandparents were superb. The race had been poisoned by certain diseases, and the most important was syphilis, which was largely accountable for the so-called racial degeneracy of which they had heard so much. When they came to close quarters with the problem, they found in regard to much so-called inherited deaf mutism, epilepsy, and insanity, that in point of fact it was not heredity. It was infection by syphilis, which was preventable and, if taken in time, curable. Another racial poison was alcohol, and he regarded it as deplorable that he was able to offer them such an alcohol map of the world as he then showed, when a large proportion of the world had recognised the duty of dealing drastically with alcohol, whilst Great Britain remained black.

People did not realise how much splendid food was continually being destroyed to make poison. They had not got enough ships to bring the things they needed for the purposes of the war, but they had ships bringing barley and other things to be turned into poison for mothers to buy with their separation allowances, and so to raise the infantile mortality. He believed in the idea of democracy, but they had this most difficult and painful fact to deal with: that a great autocracy like Russia could deal with such a thing with a stroke of the pen, whilst the great democracy to which they belonged had tinkered and pottered with the problem, with the results which were before everybody. Where did democracy come in in a case like that?

Lastly, there was one final argument used against those who wanted to save babies and to raise the birth rate as he did at that time. It was said they only wanted to provide cannon fodder for the future. That might be the case with some people, but he claimed that his record was not open to that criticism. Until the war he was a professed pacifist, and he hoped there was going to be no more war in their time. But he did not want to save the babies for cannon fodder. He wanted to save them for freedom, for which their best were now dying. If, as he hoped, there would be no more war, there were still those possibilities of living represented by the wide fields of Canada and Australia and other Colonies. There was room for the highest possible form of life and social organisation. He wanted them to live as the trustees of freedom and the trustees of knowledge, the "heirs of all the ages" as Tennyson had called those to be born in the future. And if some great military aggression was to be made upon freedom by anybody, then they could turn into soldiers, as their young poets and clerks and teachers and all manner of men had turned into soldiers during the last seventeen months. And when there was no more war, as people called war, there would be many an army fit to fight, as Whittier's soldiers, for

"Saner, sweeter wars, life-giving wars,
Campaigns of peace to come."

Mrs. Scharlieb said she would like to emphasise what had been said of racial poisons. A Royal Commission had been investigating the subject, and the evidence showed there was a lamentable amount of infection of the utterly innocent mothers and infants of the land. It might be said this was an unwomanly and disgusting subject to speak about, but she asked them,

as mothers and fathers and people who had the welfare of the people at heart, to consider the subject, painful as it might be to them. She asked each, in his or her own sphere, to try and get rid of the trouble. There was no doubt about it that a very large proportion of anti-natal mortality, and of mortality of infants in the first year of life, was due to the ravages of syphilis.

She had heard it said that if people chose to contract so abominable an infection, neither assistance or treatment should be offered them. But it was wrong to permit any man or woman to go about in a state which would permit them to infect their fellow creatures. Therefore they must work hard to get a recognition by the nation that the disease was one which had to be treated and cured. In order to get the better of the disease they must insist not only on the notification of every birth, but also endeavour as far as possible to carry out the noble plans of Dr. Ballantyne, and those who thought with him, so that they could go to life at its source, and protect the infants by protecting their mothers. If they had been able to do so much to limit the ravages of tubercle, and of other infectious diseases, they ought to demand of the Government and the Local Authorities that this sickness and death rate should cease.

Before they had the inspection of school children she was a member of a deputation which waited on Mr. Birrell, to ask him to facilitate the introduction of the Bill for medical inspection. He said that, so far as he was concerned they were approaching the converted, but they could not spend the money of the nation against its will, or legislate in advance of public opinion. If they could convince the nation they would find the Government heartily with them. It was exactly the same now with this other matter. They must have a notification of all still births, and it would be a good thing if they could have a notification of pregnancy, in order that women might be warned and treated, and their babies saved.

Dr. G. Eric Pritchard said that Dr. Saleeby had referred particularly to the extension of the Notification of Births Act, and that he thought he might claim as one of the results of the work of the National Association for the Prevention of Infantile Mortality. That Society had been working for the past ten years at the extremely difficult and intricate problem of how to cope with infantile mortality, and as Dr. Saleeby had told them, they had been driven back and back until they were forced to deal with the cause of the mortality, which occurred before the birth of the child. That was the point on which they must all concentrate.

But he might mention one or two other things which had contributed to the wonderful drop of thirty per cent. in infantile mortality. One was undoubtedly the passing of the Early Notification of Births Act, but the extraordinary thing was that the Act had been in force for eight years, except for the one provision that it was now compulsory, whereas before it was purely voluntary. Some of the more progressive municipalities adopted the voluntary Act when it was passed, and infant mortality in those places began to drop by leaps and bounds. The same thing would happen everywhere if the Act was adopted in a true spirit. It was compulsory on all authorities to institute the notification of birth, but it did not go further, and where they could all help was in seeing that municipalities did their duty.

Plenty of municipalities had no intention of putting the Act into effective force. They did not believe in spending the ratepayers' money for the purpose, although they could see the enormous benefit of such work conscientiously carried out. What they all wanted to see was the establishment of ante-natal clinics, where mothers could come to be examined and have advice given them, so that their children might have the chance of growing up into healthy citizens.

They had studied the question and knew the best lines to go on. One thing they knew was that if it was important to look after the baby before it was born, it was also important to look after it at the crisis

of birth. There was no question but that in the past midwives had been extraordinarily ignorant. They were very different now, but there was still room for improvement, and his Association had been working hard to improve the education of midwives, and within the last few months they had heard that the training for midwives was to be extended from three months to six months. If carried into effect, that should have a very material effect on the health and prospects of these children.

Another thing was that in the curriculum of medical men the item of looking after the health of children had hardly been considered worth mentioning in the printed forms of the various examining and degree-conferring bodies. They had been working to get the curriculum extended, and already he saw signs that it was beginning to bear fruit.

They had also been endeavouring to instruct mothers by the establishment of infant consultations, and there were now five hundred of them in different parts of the country. This movement was certainly taking root amongst the poorer classes, but the middle and upper classes did not avail themselves of the same opportunities. They were beginning, however, to have some success in that direction also.

Mr. McLeod Yearsley said he was particularly interested in the prevention of deafness, and could give evidence to support some of the facts brought forward by Dr. Saleeby. He would like to emphasise the fact that a higher infant mortality also meant a higher percentage of defectives, and it at least meant a higher percentage of deaf defectives, so far as his knowledge went. Dr. Saleeby had told them that ideas of the extent of the results of heredity dwindled when they came to investigate ante- and post-natal causes, and that was exactly what happened with regard to deafness.

In the last seven or eight years he had been closely studying the cause of deafness in children. He had studied the matter himself and in conjunction with Dr. Kerr, of Glasgow, and they found the further they went the fewer were the cases which could be put down as true hereditary deafness. The ante- and post-natal causes of deafness in children came under certain categories. One great category was meningitis, whilst in the ante-natal causes of deafness in children alcohol and syphilis particularly were to be counted as of very great importance. Investigations into large numbers of children in the deaf schools, who had passed through his hands in the last seven or eight years, showed a percentage of post-natal deafness in children due to inherited syphilis of seventeen per cent., which was a disgracefully high percentage. That was not counting the number born deaf for which syphilis was responsible.

With regard to Mr. Birrell's reply to the deputation to which Mrs. Scharlieb referred, the answer might have been, "People do not want it, and if we give it we shall not keep their votes, and therefore we could not give it them." The whole question of the future lay with the Government, and he would say to them: "Keep the lawyers out of it in the future, and let the doctors have something more to say."

Mr. T. G. Tibbey said the Child-Study Association had a very broad platform, and was keenly interested in the question they were discussing, because they believed their duty was to foster child life in the nation. But they did not stop at that, and he would make a plea for the further care of the adolescents as well. They must not forget the physical needs of the child who at thirteen or fourteen, exempt from attendance at school, was left to his or her own fate medically, and very many needed great care. After the war there was going to come a period of unemployment for boys and girls from fourteen to eighteen years of age, which was very likely to have a very serious effect upon their moral and physical development. Dr. Saleeby told them that remedies devised at the moment nearly always failed, and unless they were prepared with plans for looking after these young adoles-

cents, and taking care of them during the period of unemployment, then they would be seriously neglecting their duty of saving the future.

Miss C. S. Bremner asked if any attention had been paid to the fact that when there was a low, general mortality there was a low child mortality. She was reading a report of what occurred in Holland in the 'eighties. An Association was formed to limit the birth rate, whilst at the same time a great attack was made on the death rate. By altering both rates the death rate was brought lower than the birth rate, so that there was actually a very high saving in life. She believed the same thing occurred in New Zealand.

Dr. Dunlop, as the author of the pamphlet to which Dr. Saleeby had referred, said he was proud to have written it. The birth rate had fallen considerably, but that was due to a large extent to the absence of men in the war. He contended that after the war they would see a further rise in the death rate, and there would be a period of great economic stress. When that time came he would like to hear what Dr. Saleeby had to say about their advice. It was easy to pour ridicule on the Malthusian doctrine, but when the man who was a producer died, those dependent on him must suffer.

Dr. Sophie Jevons said she was working in the poorer districts of London, and at the present time there was greater prosperity amongst the working classes than there had been for generations. To say that at present it was impossible to support infant life was talking against facts.

Rev. Henry Wotton. IV.

A Pioneer in Child-Study.

By H. Holman, M.A.

After some search, and through the courteous and generous assistance of those whose names are mentioned below, I am able to give some further particulars concerning Henry Wotton, which may interest those who have read the preceding articles of this series. Of his parentage, and the place and exact date of his birth, I have been unable to discover any trace. We can, however, make an approximate guess as to the year of his birth. The Rev. C. R. L. MacDowall, Head Master of the King's School, Canterbury, has been good enough to get from the Rev. C. E. Woodruff, the Deputy Cathedral Librarian, the information that Wotton was one of the King's Scholars in the school :—"In 1640 his name appears rather low down amongst the King's Scholars... In 1642 he was head boy, or at any rate head of the King's Scholars... I can't say whether Wotton held the Parker Scholarship, though as he was head boy it is likely that he did... He was not a King's Scholar in 1637." Unfortunately the books for 1638-1639 are missing.

It is, I think, probable that he became a scholar in 1638, and held the scholarship till 1642, and then was taken into the house of Dr. Meric Casaubon, "from whose house," he says, "I immediately went when I was admitted in Corpus Christi College in Cambridge" (1643). This would fit in with the fact that the King's Scholarships were held "*four* years, or, with the approbation of the Dean and Chapter, and Head Master, *five* years, but no longer" (Nicholas Carlisle, *Endowed Grammar Schools*). Wotton says that he was "for seven or eight years" in the school. This would mean that he entered it about the year 1636, and as it is unlikely that he would enter it before he was eight years old, it is probable that he was born somewhere about the year 1628.

It is quite possible that Dr. Meric Casaubon may have taken him into his house to employ him as an amanuensis, and then gave him further instruction in his classics partly for this purpose. This idea is suggested by the fact that he (Casaubon) was extremely busy at the time in writing works in which the help of an amanuensis would be very valuable. Further he was then in receipt of a very limited income, and the head boy of the King's Scholars would be qualified to give him a good deal of mechanical aid, for

which he would be paid by board, lodging, and tuition. One other fact suggests the probability of this, *viz.*, that Wotton afterwards became amanuensis to Bishop Andrewes, an intimate and close friend of Dr. Meric Casaubon's father, and also a great friend to himself for his father's sake. Doutless Casaubon recommended Wotton to Bishop Andrewes.

Wotton gives an interesting account of his relations with Casaubon, and of the method of tuition which the latter employed in carrying on his studies in the classics. It will be noticed that the method used by Casaubon was, in its chief ideas, the same as that afterwards used, and expanded, by Wotton in the education of his own son.

The following is the account given by Wotton in his *Essay* :—"When I myself had, for seven or eight years, been educated in the Free-school at Canterbury, Dr. Meric Casaubon, whose name is great amongst all learned men, but particularly venerable, and with all gratefulness to be acknowledged by myself; taking a particular notice of me, he took me into his family, where he showed the love and care of a tutor to me in my studies; from whose house I immediately went when I was admitted in Corpus Christi College in Cambridge. Tho' I was then in the upper class of the school, had so far learned my Latin and Greek, and could, as ordinarily it was performed by others, make a theme and a verse, yet by reason I never had the acquaintance with any considerable portion of any author, either prose or verse, my knowledge both in the Latin and Greek tongues was so trifling as that it amounted to little or nothing; whereupon, in order to the attaining of the Latin and Greek tongues, his business was to commend an author in Latin, most accommodate to my abilities, and the author he chose for the Latin was Quintius Curtius, which in his house I read over, so as to observe the sense of every word; and in Greek he charged me with the reading the gospels in the New Testament. These he left with me, as the exercise of my own industry, and for the trial of my own abilities; whereas in Greek he particularly went over with me Homer's *Batrachomyomachia,* and several verses in *Theognis;* and in Latin he instructed me in Virgil's second *Æneid,* and two of Cicero's orations against *Catiline;* all of which he particularly concerned himself in; he caused me to learn accurately without book. Those and other pieces of *Curtius,* and the Greek Testament, he only now and then, to observe my diligence, would a little pose me in; by which means I began to understand somewhat in the Greek and Latin tongues, and with some facility to write Latin, and to conceive what it was to have a style."

To the Rev. Dr. H. P. Stokes, Vicar of St. Paul's, Cambridge, who has most kindly taken great trouble in the matter, I am indebted for the information that Henry Wotton, of Kent, was admitted as Bible-clerk at Corpus Christi College on February 23rd, 1643. "The Bible-clerkship marked him as a scholar. In the University Registry, amongst the Matriculations in July, 1644, Hen. Wotton, of C.C.C., is included among the Quadrantarii, which again, of course, refers to his being a Scholar and not a Pensioner." This seems to confirm the suggestion that, as head boy of the King's School, he went up to Cambridge with a Parker Scholarship. He took his Bachelor of Arts degree in 1647.

After his course at Cambridge there is no record of his doings, except the reference in Evelyn's Diary, July 6th, 1679, that he was "formerly amanuensis to Dr. Andrews, Bishop of Winton," until we read an account of him in *The Diary and Autobiography of Edmund Bohun.* Bohun was a lineal descendant from a cousin of William the Conqueror; a learned man, and a historian of some repute, who was concerned in public affairs; and, in his later life a Chief Justice of South Carolina. Under the date July 19th, 1677, he writes :—"I visited Sir John Rous bart, as I have often done. He had some clergymen with him; and among them H.W. rector of W. We had much con-

versation on ecclesiastical affairs and on our divisions. H.W. extolled his own forbearance towards the wandering sheep of his parish. To which I answered that, nevertheless, he himself was hated, because although, as he acknowledged, he had formerly been one of the same party, he had forsaken them. He said, however, that he had fallen in with the church because he saw that peace could not otherwise be established. But I asked him whether, for the same reason, he would not leave the church when he saw fit. He was excessively angry, and gave no answer. Then I declared that men of this sort would read the Koran when they could derive emolument from so doing. Which he again denied. I proceeded to prove this, and described their detestable and known perjuries, inferring that they who would commit perjury for party's sake would do anything that might seem expedient. To this he made no reply. Striving to conciliate both parties, he is suspected by both. He neither loves nor is beloved by any one."

In justice to Wotton it must be pointed out that Bohun was, according to Mr. S. Wilton Rix, the editor of his *Diary and Autobiography,* a man who "gave offence by the tenacity with which he held his opinions, and by his freedom and copiousness in propounding them. Naturally earnest and energetic, he constantly became the victim of his own anger and indiscretion." Though he writes of himself :—" I was bred a dissenter from the religion now established in the Church of England, a great admirer of parliaments; and taught betimes to fear monarchy and arbitrary government"; yet his biographer says that he became "strictly attached to the protestant Church of England, and loyal in the extreme of loyalty, he was an object of jealousy and dislike to his more opulent, democratic, or moderate fellow justices, and of terror to the nonconformity, popish or protestant." We may, therefore, fairly discount his criticism of Wotton, expressed in such unmeasured terms, and have regard rather to Wotton's "forbearance towards the wandering sheep of his parish," than to Bohun's scathing attack on his change of opinion.

It is interesting to notice that Bohun writes in his diary, on April 11th, 1677 : "My wife admonished me that I was disliked by many gentlemen on account of my talkativeness, and because I speak at too great length. I am conscious of being disliked; but I know not why. I have never, unless extremely provoked, uttered the slightest reproach against any. I have injured no one. Yet I am beloved only by the clergy and some other learned persons, with whom I chiefly associate; perhaps for no other reason than the above." It is to be hoped that other clergymen had better reason to love him than Wotton.

The "wandering sheep of his parish" referred to were those who belonged to the Congregational Church which had been formed in 1649, under the Rev. John Philip, one of the Westminster assembly of divines; and the refugees, both ministers and laymen, who were sheltered or concealed at Wrentham Hall, the home of Francis Brewster (lord of the manor), who was a puritan. It was he who presented Wotton to the living of Wrentham in 1666, doubtless being influenced by the fact that he had once been a nonconformist, and was a moderate and tolerant man.

Thanks to the very generous help of the Rev. E. R. Yerburgh, the present Rector of Wrentham, I am able to give some further information concerning Wotton's time at Wrentham. He was presented to the living as stated above, and held it till his death on December 10th, 1696. He was buried in Wrentham church. The Rev. E. R. Yerburgh says : "The registers were kept by H.W. with very great care, *e.g.,* in the case of Burials he always records whether the people were buried in 'Linen or Woolen.' I send you two extracts : 'October 6th, 1678. Mrs. Amy Brewster was buried, and on the 10th day of October, a note under Justice North's hand of Benacre was brought that 5£ was paid for her not

being buried in Woollen, 50 shillings whereof was given to ye porre of this parish into ye Hands of mee Henry Wotton. August 23, Thomas Downes servant to Sir Robert Halton Knt. was buried August 23, and no affidavit being sent of his being buried in Woollen only, a certificate was sent on August 31st delivered to ye Overseer by myselfe.' H.W. wrote a beautiful hand." His son William is also said to have written a fine hand.

A very interesting sidelight on Wotton's standing in the world of learning is contained in a reference to him in Nichols' *Literary Anecdotes,* Vol. III., p. 650, where among the " Progress of Sale Catalogues (1756) " it is mentioned that at a sale held by Thomas Osborne, of Gray's-inn—"the most celebrated Bookseller of his day...his collections were truly valuable for they consisted of the purchased libraries of the most eminent men of those times " (according to Mr. Dibdin, *Bibliomania,* p. 470)—the library of "the learned Mr. Hen. Wotton " was included.

My further search for records of Wotton's life has led me to the conclusion that his *Essay* was first published in 1673 and republished in 1753. The Librarian (Francis Jenkinson, M.A.) of the Cambridge University Library tells me that " There is a note by E. Umfreville in our copy (Adv. 396) of H. Wotton's *Essay.* But the statement that the book was originally published in 1673 is *quoted* (from a review in the *Monthly Review* for December, 1753) in *another note* by a later hand, said by Mitford (who once owned the volume) to be Porson's : but I am not satisfied that it is written by him."

The note by Umfreville says " that the original MS. of the essay was given to T. Waller the bookseller, who issued it, by E. Umfreville" (*Dictionary of National Biography*). The lengthy review of the 1753 edition in the *Monthly Review* begins with this statement : " The republication of this piece eighty years after the first appearance of it, as it contains a variety of agreeable amusements, cannot fail of exciting some attention in the public."

Mr. S. Wilton Rix, the editor of *The Diary and Autobiography* of Edmund Bohun, says, in one of his footnotes, that the *Essay* was published in " London 1672; reprinted 1753," but gives no authority for the statement. Nichols says that the book was " reprinted in 1752" (*Literary Anecdotes,* vol. 4. p. 258).

Sir Philip Skippon, of Wrentham, writing to Mr. John Ray, F.R.S., on September 18th, 1671, to tell him about " a little boy, William Wotton," says : " His father, I believe, will signify hereafter the great proficiency of the child, so much admir'd by every one that knows what he can perform already " (John Ray's *Philosophical Letters,* 1718). It is probable that Wotton had informed Sir Philip of his intention to publish his *Essay,* the MS. of which was at the time possibly in hand and nearing completion, for the text reads as though it had first been in the form of a diary, or notes written from time to time.

It is unlikely that these statements are quite unfounded. It is also quite reasonable to suppose that William Wotton would, when he came to man's estate, prefer that the *Essay* should not be republished during his lifetime; while after his death his reputation would lead others to desire that the record of his precocious youth should be re-issued. Taking all these things into consideration, we shall probably be right in concluding that the *Essay* was first published in 1673.

There are several remarkable parallelisms between the *Essay* and the German book recently published in English on *The Education of Karl Witte.* In each case the educator is the father, a country clergyman and accomplished linguist ; and in each case the son is the pupil, and becomes famous as an educational phenomenon. Both fathers have a genius for teaching, and an untiring energy and devotion in their self-chosen task. Each gives a supreme example of what we may call systematic, practical, experimental child-study and pedagogy by an amateur; and each supplies valuable material for the study of the nature and value of the intensive culture of intellectually precocious children.

Parent Educators.

By Professor Bidart.

Translated by Miss M. S. Ryan, B.A.

4. *Self-Correction.* "Tell us what to do to correct you." If he himself suggests the means, he will want to prove himself right, and he will watch himself more carefully.

The last stage in the process is reached when the child himself notes down his own faults. Custodian of the magic book, he will inscribe daily the record of his shortcomings, and his faults, the good deeds he might have done and did not do. He puts the book in the same place, and this time you go to read it.

At the slightest sign of inaccuracy you write in the margin: "This is not as it happened; this is the real fact." Rest assured, fathers and mothers, that your child will thus make rapid progress in moral perfection. You will not need to have recourse to praise or blame, the shame of having to write down his faults, the pleasure of having nothing to enter, of showing a spotless page. Can you conceive of any stronger influence on a child who has the slightest vestige of honour?

5. *Greediness.* "Up to the age of seven my parents spoilt me. I was a greedy child: this is the vice which makes thieves of men, and when they are not checked in time they become hardened criminals. You fathers, mothers, guardians or teachers who listen to me, fulfil your duties by watching for the first manifestations of the shameful vice which has brought me here." (Quoted by Mme. Campan from the speech of Cartouche on the scaffold.)

(1) *How we ourselves cause greediness to arise.* "Taste that, it is nice." "How do you like this cake?" "Some roast meat or fowl, which do you prefer?" "What shall we have for dinner this evening to celebrate the day?" "Now, children, we are going to have something very nice for lunch to-day"...This is what the child is continually hearing. He easily becomes convinced that eating and the enjoyment of eating is the principal business of life. During the first two years of his life he does nothing but satisfy his appetite; after that, he is greedy, and he has become so by our fault, by our injudicious remarks.

(2) *How we encourage greediness.* "You have not been a good child, you shall not have any supper..." "Do your lessons, then I will give you some sweets..." "Don't touch that dish on the table, it isn't for you, you are not old enough yet."... Such words as these excite desire. It is just the same with the practice, after any absence, of bringing back cakes or sweets, of giving the child something to eat between meals, of letting him eat meat without bread or vegetables, which proves that he has no real appetite; or, again, of letting a child partake, during the same meal, of several highly flavoured dishes, whereby the taste is artificially stimulated and the child led to go on eating when he no longer has any need for food.

Correspondence.

THE TEACHING OF CIVICS.

Sir,—A few months ago I wrote you asking your readers for information upon the teaching of civics. The enquiry I was then engaged in has been for some time completed. May I ask you for space to make known one of the results it is leading to?

It has been made quite clear to us (1) that civics teaching should concern itself with the economic and voluntary organisation of our community, as well as its local and central government; (2) that its starting point should be the civic organisation of the local community with which the pupils are in contact; and (3) that many teachers who are trying to work on these lines already are much hindered by not knowing how to set about getting a knowledge of the social life of the districts where they live or work.

We want to give such teachers every assistance in our power; and we are therefore arranging to co-operate with the Committee for Regional Survey in a Study Meeting at Ludlow (Shropshire) at Easter this year. This meeting will give opportunities for the study of the life of the Ludlow region in all its aspects. One section will be devoted specially to the social life and organisation of the district. The study will be largely devoted to getting at facts first-hand; there will be little of book work or formal lectures, but plenty of opportunities for discussion.

I think that many of those teachers who feel that more should be done for citizenship in our

schools will be glad to know of this meeting. I shall be pleased to send full particulars to anyone who will forward name and address.—I am, etc.,

ALEXANDER FARQUHARSON, Secretary.

The Moral Education League,
6, York Buildings, Adelphi, W.C.

THE PERCEPTION OF NUMBER.

Sir,—In the February number of the Journal W. F. Sheppard declares himself sceptical when I state that my boy can "see" seven numbers without enumeration. He further suggests that six is too high a number for average grown-ups, and puts his estimate at four.

I have tested twenty girls of from seventeen to eighteen years old, also various other people, and I am of the opinion that from six to seven represents the limit. It is difficult to eliminate the possibility that these numbers were mentally added and not really seen. I explained to the people I was testing that I was trying to find out where the limit of "seeing" was, and asked them to tell me each time which method they had used. They always appeared quite definite as to which way they had arrived at their results.

With regard to my boy, now just six, I have tested him anew in the last three days. I took sixty observations. All the threes and fours were right, also eight out of nine of the fives, nine out of ten of the sixes, eight out of nine of the sevens, three out of five eights.

He was very interested in the experiments and quite emphatic as to when he had arrived at his conclusions by addition, and when he had "seen" the numbers. According to himself he always saw up to five; six and seven were almost equally divided as to method. He explained to me: "Of course, when I see seven I sort of guess it is seven; I cannot quite know like I do with three." However, the guesses were remarkably correct.

I am lucky in having a relay of boys to experiment on, so I tested my next boy of four years eleven months. He is not such a quick child as his brother. He has had no instruction in counting, and can only add two and three with appreciable delay. Tested in the same way, he is invariably right up to and including five, then he makes no attempt and says, "I do not know." The answers he gives are spoken with no hesitation or delay.

A third boy of three years six months can only say the number names up to five in correct sequence. He never counts objects one by one, but states "It is three," "It is four." Testing him like the others, he is quite invariably right up to four, but every time I tried five he said he did not know. In this habit of silently estimating the number he differs from the other two, who invariably began by counting objects: "One, two, three," and, whenever possible, touching them as they counted.

Leaving aside the question of what the ordinary adult powers are in this line, the whole subject is most interesting. It looks rather as if children have this power very highly developed when comparing them with adults. If so the question arises why and how development ceases to progress. Innumerable experiments are needed on children, so that we shall gain some idea as to the normal limits. It would be very easy for people to get data on the subject from their children, and it would be most extremely interesting.—Yours, etc.,

ALYS LUCAS.

Child-Study Association and the Constituent Societies.

The London Society.—The following lectures have been arranged for 1916:—

February 24th.—*Psychological Problems Arising out of the War.* Cyril Burt, M.A., Psychologist to the London County Council. Chairman—Miss K. T. Wallas, L.C.C.

March 2nd—*The Danish Child at School.* A. E. Hayes, Head Master, Holy Trinity School, Kentish Town; L.C.C. Travelling Scholar in Denmark, 1903-4. Chairman—P. B. Ballard, M.A., D.Litt., Inspector (Education), L.C.C.

March 16th.—*The Unconscious Mental Life of the Child.* Ernest Jones, M.D., M.R.C.P. Chairman—Sir James Crichton-Browne, M.D., LL.D., F.R.S.

March 30th.—*The Child Delinquent.* Cecil M. Chapman, J.P., Metropolitan Police Magistrate. Chairman—Rev. W. D. Morrison, LL.D., Rector of St Marylebone.

April 13th.—*Experiments on Handwriting in Schools.* Chairman—Dr. C. W. Kimmins, M.A., Chief Inspector (Education), L.C.C.

DR. KIMMINS will give an account of Speed Tests of different kinds of Handwriting.

MISS GRAINGER, Head Mistress of St. Luke's Girls' School, Nutford Place, will describe an Experiment in Handwriting.

MISS GOLDS, Head Mistress of St. George the Martyr's Girls' and Infants' Schools, Bloomsbury, will give an address on Preparatory Work, and Introduction into a School of a New Method of Handwriting.

The lectures will be held at 90, Buckingham Palace Road, S.W., on Thursdays at 6 p.m.

Notices and News.

The Society for the Study of Orthopsychics inaugurated its spring term series of lectures on Wednesday, January 26th. Dr. Marie Stopes gave an interesting address on "Behaviour in the Lowest Organisms." By lowest organisms was to be

understood single celled animals and plants; and by behaviour was meant reactions to stimuli. The two great activities which distinguish animal from non-animal life are hunger and love. These seem to be exhibited by amœba, after all allowances have been made for purely physical processes.

The remaining lectures of this course, on "Landmarks in the Development of Mind," should prove of real help to teachers.

Reviews.

Your Baby; A Guide for Young Mothers. By Dr. Edith E. Lowry. Pp. 238. B. Forbes and Company, Chicago. Price 1 dollar net.

Dr. Edith Lowry opens this book with the somewhat startling statement that "nearly half the babies born into this world die before they are a year old." It would be interesting to know on what evidence this estimate is based. But even if these figures refer only to infants born to the barbarian in the tropics we cannot help thinking they overstate the case. The advice given to the young and to the expectant mother is, on the whole, practical and sound, although the more modern clinician might take exception to such directions as those which refer to the frequent cleaning of the eyes, the mouth and the buttocks of infants with boracic lotion or soap and water. The protective mechanisms of the body resent undue interference. The recommendation that babies are to be kept warm with hot-water bottles is unsound, unless made with reservation. You do not make strong legs by putting on splints, neither do you encourage warm feet (a most desirable possession) by holding them in front of the fire, or by supplying hot-water bottles; this is the way to ensure cold feet.

We notice that a "soother" is interdicted before the infant has learned to "suckle the breast." We do not observe any other warning against the use of this pestilential resource of the incompetent mother. We do not agree with the author on the subject for exercise for infants. She says that rest and quiet are the chief requirements for growth. This is a new physiology; we were under the impression that "exercise of function was the essential condition for growth." A little later, however, she says that the limbs should be rubbed gently so as to exercise the tired muscles. Dr. Lowry cannot have it both ways. For our part, we thoroughly agree with the principle of massage because it is a modified form of exercise, and because exercise and exercise alone promotes the growth of the only tissues in the body the growth of which we wish to see encouraged.

We note with dismay that the infant is to wear "bands" (binders) until he has finished teething, and at first these should be "fastened snugly" to prevent rupture of the umbilicus. Is the cramping restraint of a flannel binder the way to prevent protrusion of the navel? The intervals for feeding recommended are four hours during the day and a six-hour interval at night! For constipation, olive oil or an occasional enema is advised. We notice no reference to the use of orange juice or liquid paraffin, far safer laxatives. Excess of olive oil or of fat is itself a prolific source of constipation. Mothers should be warned of this.

In the part of this book which deals with discipline there is much which should be of interest to mothers, although we are afraid that the section of it which treats of the training of the unconscious mind during sleep will gravely mislead.

"Your Baby" is written in an attractive style, and is sure to find many admiring readers.

El Monitor de la Educación Común (Buenos Aires). June, July, August, 1915.

The June and July numbers contain a long article by Sr. Pedro Bertolini on "Educational Regeneration." The evils of the present educational system may be seen in present-day character and manners, and in the exhaustion, superficiality and sadness of childhood. This has long been recognised. Rousseau had brilliant theories of reform not translated into practice. Pestalozzi possessed insight and influence, but the application of his ideas became mechanical and pedantic. Froebel endeavoured to give scientific order to Pestalozzi's intuitive method, but his mysticism and symbolism resulted in an educational *régime* of geometrical stiffness. Herbart affirmed in theory great liberty of action for the child, but in directions determined by the teacher. Tolstoi had the truest vision of real educational liberty, but could not find the true practice—so liberty became anarchy. Spencer's ideas of self-effort and interest also resulted in no substantial, practical revolution. Experimentalists like Claparède have pointed out the dangers, physical, moral and psychical, of the fatigue resulting from our present system, but have only endeavoured to raise to a reasoned criterion the tacit suggestion of the idle students who avoid the dangers of school by indolence. Medical men have added further accusations, but the efforts of all, including the most eminent modern pedagogues, have resulted only in "new patches on an old garment." But "some one will come who will make the attempt at a reconstruction *ab imis*," wrote Tolstoi, and that someone has come in the person of Maria Montessori. Then follows an account of the origin, development, and extension of Montessori teaching.

Sr. Luis Morzone points out that to teach reading the teacher must be experienced in practical phonetics, for the art of speaking must *precede* and accompany the art of reading. The importance of clear diction increases with the growth of democracy—in monarchies writing flourishes but not oratory, in republics both.

Dr. Luis Suñé y Medan, of Barcelona, is quoted as to the influence of defects of the nose, of the throat, and especially of the ear on character. He says that of a certain examined number of morally

perverted children fifty-nine per cent. had defective hearing.

The Education Board of the Province of Mendoza provides an example for imitation in a scheme for the establishment of a holiday colony for school children and teachers in weak health.

Henry Turner Bailey writes on "A Definite Ideal in Drawing." Drawing and seeing are complementary, and the order of advance in drawing is the order of seeing, *e.g*, in drawing flowers the order is: (1) Direction of growth expressed in line with the colours of the parts expressed by the principal shades, *e.g.*, jonquil—yellow pencil for flower, green for stem and leaves. (2) Dimensions and outlines of the parts expressed in mass with shades shown by local colours. (3) Apparent outlines and proportions of the parts seen in perspective and expressed in mass. (4) Lines of growth and outlines of parts as influenced by fore-shortening expressed in line. (5) Superficial anatomy, apparent structure of each part, and articulation with other parts expressed in line. (6) The characteristic beauty of the plant as a whole as interpreted in the most appropriate medium.

Ungraded. January, 1916. Published monthly, excepting July, August, and September, at the Hall of the Board of Education, 500, Park Avenue, New York City. Pp. 25. Subscription, $1.50, single copy $0.20.

This journal (Vol. i., No. 6) of The Ungraded Teachers' Association of New York City, is new to us. It "is devoted to the educational and social problems involved in the scientific training of the mentally retarded, and to the ultimate elimination of the feeble-minded."

The contents of this number are:—Who is Feeble-minded? (Dr J. E. Wallace Wallin), Care of Sub-normal Children (May C. Deane), Suggestions on Speech Development (Dr. John F. Reigart), Habit Formation (Bertha Winn), Habit Formation and Class Management (Martha Barney), Training the Defective through Household Science (Clara Burrow), Editorial, and Reviews.

The journal is written in an interesting and helpful way, and should prove of real practical value to teachers of the feeble-minded. We cordially recommend it.

The Art of Story Telling. By Marie L. Shedlock. Pp. x., 240. John Murray. Price 5s net.

All who have enjoyed the delight of hearing Miss Shedlock tell stories will be eager to know how to acquire such an art. Miss Shedlock charmingly tells them how in this book. She utters a word of wise caution in her introduction when she says: "It is a great fallacy to suppose that systematic study of story-telling destroys the spontaneity of narrative. After a long experience, I find the exact converse to be true, namely, that it is only when one has overcome the mechanical difficulties that one can 'let oneself go' in the dramatic interest of the story."

The book begins with a characteristic and enlightening preface by Professor J. Adams, and there are chapters on: the difficulties, essentials, and artifices of story-telling; elements to avoid and to seek; how to obtain and maintain effect; questions and answers; and stories in full, and a list of story books (English and American).

Miss Shedlock urges the use of stories (1) to give dramatic joy, (2) to develop sense of humour, (3) to correct wrong tendencies, (4) to develop ideals by examples, and (5) to develop the imagination; and she shows how she would achieve these ends.

Letters on Marriage. By Mrs. Chambers. Pp. 76. H. R. Allenson, Ltd. Price 1s. net.

This little book is written in the form of letters to a young wife about Conception, Husband and Wife, Preparation for Parenthood, Birth and Infancy, and Training. It contains information and ideas, but one wonders if it is useful to administer them in such sugar-coated homœopathic doses.

Publications Received.—*Journal of Education; Educational Times; Child-Life; Parents' Review; Eugenics; Secondary Education; Educational Review* (U.S A.); *Child-Life* (U.S.A.); *School and Society* (U.S.A.); *Ungraded* (U.S.A.); *El Monitor de la Educación Común* (Buenos Aires); *Estudios Pedagogicos* (Santiago); *School and Life* (Petrograd); *The Social Reform Advocate* (Madras).

The Child-Study Library.

With this number of the Journal there is issued a list of additions to the Library, and it is suggested that each member should fix this leaflet in his or her copy. Any member who has not received a catalogue should apply to the Hon. Sec. of the local Society, by whom copies can be obtained from Mr. W. J. Durrie Mulford, 90, Buckingham Palace Road, London, S.W.

Not the least notable of the additions are the bound volumes of *The Paidologist*, the first Journal of the Association, and of *Child-Study*, its successor. Like many other things, Vols. I. and IX. of *The Paidologist* await the close of the war for treatment, since certain parts were missing. These errant numbers have been recovered, with the exception of Part II. of Vol. IX., and if any member should have a spare copy of this part he would greatly oblige by sending it to Mr. Mulford, who will return cost and postage.

These volumes (bound separately) extend over a period of seventeen years, and in their articles and reports of addresses, contributed by leading English and American educationists, constitute a unique record of advanced educational thought, during a time which has seen more progress in this field than in any similar period in our history.

No increase of postal charges is to be made for books from the Library.

Child-Study.

The Journal of the Child-Study Association.

Vol. IX.—No. 3. APRIL, 1916.

The Unconscious Mental Life of the Child.

By Ernest Jones, M.D., M.R.C.P.

In the following remarks the subject of the unconscious mental life of the child will be dealt with from the point of view of a particular mode of approach to child-study on the one hand, and of a particular conception of what is meant by the term "unconscious" on the other; in other words, from the standpoint of psycho-analysis.

The mode of approach to child-study to which I refer is primarily that of a psycho-analytic exploration of the adult neurotic mind, a fact which in itself immediately excites prejudice as to the validity of any conclusions reached in this way. Three critical questions will at once suggest themselves in this connection: First, to what extent are we justified in transferring to the normal conclusions avowedly based on investigation of the abnormal? Secondly, what value has an examination of the adult mind for the purpose of child-study, and are not memories of childhood distorted beyond expression in the adult mind? Thirdly, how much reliance can be placed on the psycho-analytic method of research, and on the conclusions reached by the use of it?

It is not possible to discuss the last of these questions here, for to do so would lead us too far from the present subject, and I must therefore be allowed for the purposes of these remarks to make the assumption that the lines on which the psycho-analytic method is carried out are sound ones, so that I may confine myself here to expounding some of the conclusions that have been arrived at by those who employ it. In the case of the other two questions I can at least indicate the nature of the answers that may be given to them.

As to the first question, concerning the relation of the normal to the abnormal mind, there is this to be said. Although at first sight there seem to be evident differences between the workings of the neurotic and what may be called the normal mind, nevertheless closer attention to the matter shews that these are always differences in degree rather than in kind, that the same forces are in play in the two cases, and that, strange as it may appear, disease does not add any new element that is not already present in the healthy mind. The grouping of the forces operative may be modified in the case of a neurosis, and their relative perspective altered, but the structure and mechanisms of the mind remain precisely the same as in the normal, and the principal difference between the two is that, owing to the magnification afforded by neurotic reactions, it becomes easier to discern and trace out the action of fundamental character traits when one is dealing with a neurotic person. Further, neurotic tendencies have such a widespread incidence—no one being entirely free from them—that it would be more correct to regard an absolutely healthy mind as the more abnormal, in the sense that it constitutes a theoretical abstraction rather than a description of what is actually met with.

The third criticism mentioned above, concerning the relation between the child and adult mind, calls for a more detailed explanation. The familiar saying, "the child is father to the man"—one to which no more than lip service is usually paid—is taken very seriously and applied very literally by the psycho-analyst. As the re-

sult of his investigations, he holds not merely that certain interesting resemblances can be perceived between the child and the adult into which it later develops, an observation easily made and generally recognised, but that the child's mind persists throughout the whole of life in an unaltered form by the side of, and concealed by, the adult mind. This persistence is of a peculiar kind, for which no analogy can be found elsewhere in nature; what constitutes its unique feature is the curious phenomenon that the child's mind is to be found in adult life in its original and unchanged form at the same time as the adult mind into which it has developed, a paradox which becomes less startling, however, when one bears in mind the difference between form and energy, between what may be called the static and the dynamic aspects of mental processes.

It is true that, in so far as the infantile mind still produces external manifestations in adult life, it does so only in a modified form and rarely in its primitive way (really only in mental disorder), but the reason for this is that the unchanged form of the infantile mind is entirely withdrawn from external observation in adult life, being buried in the depths of the unconscious. It constitutes the core and the characteristic part of the unconscious mind, which up to the present has been found capable of exploration only by means of the psycho-analytic method. To the consideration of its typical features we shall return as soon as we have come to an understanding about the meaning of the term "unconscious mind."

Without entering into the historical question of the many senses in which this term has at various times been employed, I propose simply to indicate the sense in which it is used in psycho-analysis, which is the one in which it will be used in this paper. The word "unconscious" here does not so much mean that there is no quality of consciousness attaching to the mental process in question, though this is probable enough, as that the conscious ego is *unaware* of it. Thus an unconscious idea means an idea, which may be merely a latent memory, that at the given moment under consideration is not present in consciousness, so that the ego is not aware of it. This is a simple enough conception, but there are two further matters in regard to it that are not so commonly appreciated. The first is that such ideas are not always latent, as might well be supposed, but that under various circumstances they may exert important activities without at all penetrating into consciousness. The readiest proof of this is to be obtained from observation of so-called post-hypnotic phenomena, where an idea implanted by the physician while the subject is in a somnambulic state may subsequently lead to quite complicated actions being performed by the subject, without his having the least notion of the source of such impulses, *i.e.* of the implanted idea. Similar proofs of the dynamic power of unconscious ideas may easily be obtained by investigation of dream life, or of various everyday slips in mental functioning, such as slips of the tongue and pen, errors of memory, etc.

The second point is that the correlation between the importance of a given idea and its absence from consciousness is not at all what it is commonly assumed to be. The general opinion about this is that if an idea is not present in consciousness it is because it is not important enough, and that it can penetrate into consciousness only when it attains a sufficient strength, *i.e.* a sufficient degree of affective significance. This, however, is only true within a very limited range. It can easily be shown that many ideas, which are both unconscious and of great dynamic importance, are quite the reverse of weak or insignificant, indeed that they represent a most essential part of the personality.

We have therefore to draw a distinction between two classes of unconscious mental processes: between those on the one hand that fail to reach consciousness because of their lack of importance, and those on the other hand that fail to do so because of their excess of importance. To these two classes have been

given the names of " preconscious " and " unconscious " respectively. Preconscious thoughts comprise the vast number of thoughts that are not present in consciousness at a given moment, but which have the capacity of entering consciousness under appropriate circumstances without any special difficulty, *e.g.* when they are called up by a suitable train of association. Thoughts that belong to the unconscious proper, on the contrary, have not this capacity. Between them and consciousness there is interposed an almost insuperable barrier, and without adventitious aid it is not possible for them to surmount this. On any attempt being made to bring these unconscious thoughts into consciousness the barrier manifests itself, subjectively as a sense of intense repulsion against the thoughts on the part of the person, and objectively as a sense of opposition against the attempt on the part of the outsider.

There is good reason to believe that this opposition, or resistance, as it is called, is a manifestation of the same set of forces that are in constant action in restraining the unconscious thoughts from entering consciousness, so we see that the barrier in question is really a dynamic pressure exerted against the onward flow of unconscious thoughts. This dynamic pressure is given the technical name of " repression," and it is easy to shew that its function is to keep from consciousness, so far as is possible, unpleasant and painful thoughts. It does not need much introspection to detect traces of this mechanism even in consciousness itself, namely, the tendency to ignore what we would rather not see or know, and to turn our attention away from thoughts that are personally distasteful; it is indicated in the very use of such phrases as " repulsive ideas," " thoughts that repel one," and so on. But by definition, from the nature itself of the process, it is evident that we can have little conception of the extent to which it is in operation, for thoughts from which conscious attention is deflected are, by definition, those of which we are least aware. I lay stress on this expression of deflection of attention, for it is a common mistake to regard the process of repression as one in which the person deliberately pushes out various thoughts from consciousness, whereas it is much more a process that *prevents* them from ever entering consciousness, though the former occurrence is naturally the more familiar to us.

Investigation of thoughts that belong to the unconscious proper shews that they possess a number of peculiarities which sharply distinguish them from conscious and preconscious thoughts, peculiarities which I cannot even enumerate here. They differ in both their content and their mode of functioning. We may therefore summarise the foregoing statements by saying that when one uses the expression " unconscious " in the psycho-analytical sense, one denotes by it mental processes that are (1) unconscious, (2) dynamically active in the production of external manifestation, (3) of high significance to the personality, and (4) endowed with certain peculiar attributes that sharply distinguish them from the type of mental functioning with which we are familiar.

As was indicated above, the core of the unconscious mind, in the sense just defined, not only dates from the period of early childhood, but actually is the infantile mind itself which has persisted in an unaltered form as if it had been embedded in the centre of all later mental activity. The manner in which this curious state of affairs comes about will presently be considered. Before taking up this genetic question, however, I wish to call attention to another matter in more direct continuation of our discussion. Investigation by means of psycho-analysis reveals the remarkable and fundamental fact, on which I desire to lay special emphasis, that parallel with, and no doubt related to, the barrier which we have said exists between consciousness and the unconscious proper there is also an external barrier between the infantile and the adult mind, both in the same individual and in the relation between adult and child.

The difficulty experienced by an adult

in attempting to get on intimate terms with the recesses of a child's mind has often been commented on, and indeed constitutes probably the main obstacle in the way of child-study, but there are two matters in this connection that certainly are not commonly appreciated in their full significance. One is the extent to which the resistance on the part of the child operates. When one hears a fond mother confidently assert that her child tells her everything there is in his mind one may be perfectly certain that she is the victim of a gross illusion. Not only does the child from the tenderest years instinctively preserve his inmost thoughts from any adult, however dear, but he is both unable and unwilling to formulate many of them even to himself, and these are by no means the least important.

The second matter, the resistance on the part of the adult, is still more generally ignored. The only trace of any recognition of it is to be found in such remarks as " How hard it is to see things from the child's point of view," a difficulty usually ascribed to defective imagination. Far more important, however, is the affective opposition to seeing various things that go on in the child even when the opportunity does present itself, and still more to appreciating them at their true significance when it is no longer possible altogether to overlook their existence. This opposition is not merely similar to, it is identical with, the resistance we have described above as operating against the recognition of unconscious thoughts on the part of consciousness. To repeat this in other words for the sake of emphasis, the difficulty experienced by adults in penetrating into the child's mind is grossly identical with the barrier that exists between his own consciousness and his unconscious, and until this barrier is overcome, as it is in psycho-analysis, it is impossible for an adult to see the child's mind as it really is.

This is the final answer to those critics of psycho-analysis who maintain that they have assiduously studied the child's mind without being able to find in it the various characteristics and contents described by psycho-analysts. Of course they are unable to do so, for the simple reason that they are unable to see what is in their own mind. Until a person has access to the recesses of his own mind he certainly will fail to penetrate to the recesses of another's mind, above all to those of a child's.

It is perhaps in place here to broaden the statement made above as to the basis on which the psycho-analytical theory is built. I said to begin with that the mode of approach to child-study here under consideration is primarily that of a psycho-analytical exploration of the adult neurotic mind, and I dealt briefly with the objections to this mode of approach. While this remains true historically, the statement should be completed by pointing out that other equally important sources of material have since become available to us. These are first, various anthropological data—mythology, folk-lore, comparative religion, etc.—secondly, psycho-analysis of normal adult minds, so far as any mind can be called normal or at all events healthy; thirdly, psycho-analysis of children's minds, of which a number have now been published; and last but not least, direct observation of normal children by eyes whose vision has been sharpened by the breaking down of the barrier always existing between consciousness and the unconscious mind, eyes whose gaze is no longer interfered with by the refracting prism of prejudice which divides the field of vision into what may be seen and what may not be.

We have now to take up the genetic question of how a distinction comes to be effected at all between the unconscious and the conscious mind, and here I shall have to adopt the form of a somewhat didactic exposition of the conclusions that have been reached as the result of psycho-analytic work. In the first place, there is no reason to suppose that the form of mental activity present during the first few weeks or even months of life exactly corresponds with either conscious or unconscious activity as we know these in later life, though it probably resembles the latter of these

more than it does the former. It is practically certain, for instance, that there is at that time no consciousness of self as distinct from the rest of the world, and this general lack of differentiation is probably characteristic. The splitting of the mind, therefore, into conscious and unconscious processes represents an acquired state of affairs, and not a primary situation.

According to Freud there exist from the very beginning of life two separate systems of mental activity which constitute the precursors of what later would be called conscious and unconscious thinking respectively. He conceives the mind, to start with, as an apparatus or machine which can be stirred into activity by any stimulus, emanating either from without or from within the individual, and maintains that the object of the resulting activity is always to restore the original condition of rest by bringing about a state of affairs that will nullify the effect of the disturbing stimulus. The result of setting the primary system in action is to create a condition of diffuse restlessness and excitation, which radiates widely throughout the mind, and which seeks in every direction for an outflow of the accompanying energy. The tendency to replace the state of excitation, which is experienced as pain or displeasure (*Unlust*), by the relief of satisfaction, which is experienced as pleasure (*Lust*), constitutes what we term a wish.

At the very beginning of life, immediately after birth, there is hardly time for this state of affairs to develop, for those in attendance, the mother, nurse, and so on, at once see to it that the stimulus is nullified, *i.e.* that the child's wants are stilled. It is, for instance, kept warm, protected from light and sound stimuli, and if necessary fed. On the next occasion that a similar stimulus occurs, let us take that of hunger, the excitation set up proceeds in both of the two directions open to it, towards the afferent, sensory side, and the efferent, motor side, of the mind respectively. The former results in a re-animation of the perception that on the previous occasion represented the cessation of the disturbing restlessness, in this case the sensations and perceptions accompanying the act of being fed.

In other words, the child imagines it is being fed, a process known as hallucinatory gratification of a need, in which a perceptual identity of the current situation with a previous one is brought about. Under pathological circumstances in the adult this process is apparently capable of procuring satisfaction over a long period of time. An example frequently seen is that of a hallucinatory psychosis in which the patient secures in his imagination something that is denied him in reality, such as the restoration of a lost object of affection; the same is to a less extent true of ordinary day-dreaming. As a rule, however, and especially where the exciting stimulus is insistent, such as in the case of an organic need, the imagined gratification soon ceases to maintain its capacity for satisfying the need, and recourse must be had to other methods. The diffuse excitation presses against the motor end of the psychical apparatus, and in the instance in question the child squirms and cries. This has the effect of moving the environment—the nurse or mother—to take steps which re-establish the perceptual identity of gratification in the current situation with that of the previous situation, the stimulus of hunger being therefore stilled by the actual sensations of repletion, as distinct from the preceding illusory gratification.

(*To be continued.*)

A New Test for Fatigue.

By James Drever, M.A., B.Sc.

There is no need to go into a detailed discussion of the very extensive literature that now exists dealing with the various investigations and problems in connection with the efficiency of work and the phenomena of fatigue. At the same time it seems advisable to draw attention to one or two of the more important facts established, and the more important theories and hypotheses formulated.

It is necessary to remember first of all

that two quite distinct problems have been studied. On the one hand, there is the problem of the occurrence of fatigue, its causes, its course, and its effects. On the other hand, there is the problem of finding a suitable test for indicating the presence of fatigue, with sufficient certainty to allow of its being employed practically in the school or the workroom, and, if possible, a test that will not only indicate the presence, but enable us to measure the extent or degree of the fatigue. We are here concerned with the second of these problems, but a few words regarding the first will not be out of place.

The definition of fatigue has itself given rise to some difficulty. For practical purposes, it would seem that we might define it as a condition of lowered efficiency in any organism, due to the expenditure of the energy of that organism in doing work, work being, for our purposes, understood psychologically rather than physically or physiologically. It is true that such lowered efficiency would ordinarily show itself, either in impairment of the quality of the work subsequently done, or in diminution of the quantity, or in both. Unfortunately, however, considerable fatigue may apparently be present, without any of these results being produced; at least, if all exertion, as someone has maintained, causes a certain increasing measure of fatigue from the very beginning, it is certain that this fatigue may be very long in showing itself by the impairment of the work, either as to quality or as to quantity.

Thorndike holds that the loss of efficiency brought about by prolonged and severe mental exertion is, after all, insignificant, and, within the limits of normal working, he would appear to be right. He cites in support of this contention some of his own investigations, as well as the very interesting investigation carried out by Miss Arai. Miss Arai wrought without a break for twelve hours, multiplying mentally a number of four digits by another number of four digits, and, at the end of the period, though her time for doing an example was doubled, she was still able to do the work, the mere fact that she was still able to perform such a task showing what a slight effect the period of work had on her arithmetical efficiency.

It is this fact that, in the normal healthy individual, the impairment of efficiency is relatively so slight, that forms one of the most serious difficulties in the testing for fatigue. Hence we are tempted to look for some test other than impairment of efficiency to indicate the effects of exertion, at an earlier stage if possible than the stage at which the effects of fatigue begin to manifest themselves in this way. In place of defining fatigue in terms of lowered efficiency, we may define it in terms of diminished sensitivity, that is to say, diminished response to a given stimulus. This is how the physiologists prefer to regard it. Practically, however, when we deal with the ordinary work of the human being from our psychological point of view, the two definitions come to the same thing, that is, if we include under " stimulus " the voluntary effort put forth in doing work. But the investigations of the physiologist indicate the possibility of defining fatigue in still other terms: in terms of degree of voluntary control of motor impulse or mental process. The new test for fatigue, to which we wish to draw attention, exploits this third possibility.

The physiological study of fatigue is naturally concerned in the main with the first problem of fatigue, and with this problem in a relatively simple form. The physiologist has concerned himself mainly with fatigue in muscles and their associated nervous elements. He can usually isolate the various parts of the organic structure so as to study the effects of stimulation, now at this point, now at that. Generally speaking, the physiologist has tended to begin with the most simple case of fatigue, the fatigue of the muscle itself, and to work backwards to fatigue arising under more and more complex structural conditions, and therefore under conditions which approximate more and more to ordinary life conditions.

The main facts established by the physiologist appear to be the following.

The working of a muscle produces fatigue in the muscle, if the stimulus is a direct stimulation of the muscle, and the result in the muscle is the using up of carbohydrates and the production of various toxic substances, with the gradual diminution and ultimate cessation of muscular contraction. If the stimulation of the muscle is through a nerve, the muscle itself is protected against an extreme fatigue effect of this kind by the fatiguing of the so-called "end-plates" of the nerve fibres in the muscle, which yield to fatigue first, and cease to stimulate the muscular fibres before the latter are quite fatigued. The nerve fibres themselves are fatiguable only with great difficulty. Where the stimulus reaches a muscle as the result of a sensory stimulus, as in a reflex, another "fatigue point" shows itself which, in its turn, in the living animal, protects the "end-plates" from their fatigue. This "fatigue point" is at the synapse or junction—though there is no real junction—where the stimulus passes from the neuron carrying the sensory impulse to the neuron carrying the motor impulse to the muscle.

No doubt the nerve cell can also become exhausted, but this we must regard as a real depletion of energy. The fatigue at the synapse does not imply any depletion of energy, but merely an increase of resistance. But though this fatigue involves no depletion of energy, it does involve interference with the control that can be exercised over the direction a motor impulse will take. It must ultimately, therefore, involve real and unmistakable signs of fatigue in the kind and amount of work produced.

This "fatigue point" at the synapse, which was established by Sherrington as a result of a characteristically brilliant series of experiments, is of the very first importance. According to Sherrington's view, a view which McDougall also has adopted and applied widely, the first phenomena of fatigue in the living organism are associated with the increase of resistance at the synapse, across which the stimulus must pass to the motor structure, or the executive machinery. This increase of resistance will necessarily involve an increase of stimulus, if the motor effects are to continue, if the machinery is to continue working as before, and the increase of stimulus, through the liberation of more energy, will cause synapse resistances which were previously sufficient to protect their motor structures from stimulation to be no longer sufficient. Hence the motor effect will extend to adjacent structures, and extend progressively, as the resistance at the original synapse increases, and as the energy liberated to overcome it increases in proportion.

An ergograph experiment carried out by Ash furnishes an admirable illustration of what happens in the case of muscular exertion. If, while a trace is being taken of the flexions of the middle finger, a lever is attached to the third finger and another to the forefinger, both these fingers being also attached to springs which will compel them, if moved, to overcome the same resistance as the middle finger is overcoming, then, before the extent of the flexions of the middle finger shows any appreciable diminution, these other fingers will begin to be flexed, and the extent of these subsidiary flexions will progressively increase, as the flexions of the middle finger diminish in extent, and as more and more effort is required to continue the work. On the other hand, if these fingers are kept immovable until the middle finger can no longer contract, and then released, flexion of the middle finger is again obtained, often with its original amplitude, and a new fatigue curve can be traced. In this way, indeed, three successive fatigue curves can be obtained from the middle finger, by releasing the other fingers one at a time.

We may now turn to the consideration of the position reached in the study of work of a more or less intellectual kind. In this case the problem is much more complex, because of the fact that energy may be liberated and resistance modified by factors which are not easily measured or controlled, as well as by the fact that the products of intellectual work are not easily measurable.

Elaborate studies of the work curve in mental work were first made by Kraepelin and his students. For the work they used chiefly additions of single digits, and the efficiency of the work was measured by the number and accuracy of such additions performed in unit time. The work curve obtained in this way proved to be very irregular. The second stage of the study, therefore, was to determine the causes of the various irregularities. Five main factors affecting the efficiency of work were distinguished—practice, fatigue, "warming up," adaptation, and spurts. All the four other factors tended to mask the effects of fatigue.

One obvious result of these investigations was, therefore, to throw into strong relief some of the main practical difficulties, which testing for mental fatigue must face. Through practice work becomes easier. Hence, not only is the effect of fatigue masked through more work being done, but the tendency to fatigue is itself diminished with increasing practice. "Warming up" and adaptation both tend to increase the output of work in its early stages, and to accentuate the effect due to practice. Spurts occur at intervals throughout the work, and are not always easy to explain. They evidently mean, however, that all the energy available is not being used, and that, under certain conditions, more energy can be released. Thus they seem, in some cases at least, to have some bearing upon the mode in which efficiency of work may be affected by another factor of the first importance—interest. In general, two well-marked spurts can be distinguished, an initial spurt, and a final spurt, but the latter can be eliminated by keeping the subject ignorant of the approach of the end of the work.

All these factors can be explained in terms of Sherrington's theory of the synapse. Practice lessens resistance. "Warming up" makes more energy available. Adaptation, through the inhibition of useless waste of energy in various directions, also makes more energy available. Spurts indicate that there is always a reservoir of energy that is not being utilised.

As a rule the effects of "warming up" and of adaptation cannot be separated, though Kraepelin claimed to be able to separate them, and it is true that the "warming up" effect disappears more quickly than the adaptation effect during a pause. The practice effect can be eliminated, or almost eliminated, in testing for fatigue, by making the subjects expert in the piece of work, before we begin our experiment. It is perhaps worth noting that Thorndike denies that any of these factors, with the exception of practice, is an invariable condition of work.

Though all these factors can be expressed in terms of Sherrington's theory, it would be a great mistake to suppose that, in the study of mental fatigue, we are faced with the same kind of problem as in the study of muscular fatigue. The difference, which is not merely a difference of complexity, though there is that also, is of such a kind as to necessitate the employment of entirely different methods of study, and to raise at the very outset the second problem in connection with fatigue, the problem, that is to say, of finding a reliable test to indicate its presence, and if possible to measure it. It is a comparatively simple matter to study the course of fatigue in the case of muscular activity. Mental fatigue presents difficulties of the most formidable description. When we assume that all mental activity involves cerebral activity, how and why we do not know, and that it is in proportion to cerebral activity we are not any farther forward. We do not know what cerebral activity is, nor do we know how cerebral activity can be measured. We can only attempt to measure cerebral activity by certain mental products and processes. When we do so, we have no guarantee that the same product will measure the same activity at different times, and it is quite impossible to compare quantitatively qualitatively different kinds of mental product. In the face of these and similar difficulties, it is obvious that, before we can hope to begin the scientific study of mental fatigue we must first of all discover a method of indicating and measuring it.

(To be continued.)

Psycho-analysis and Education.

By Mary Alden Hopkins.

[Psycho-analysis is coming to play such an important part in the treatment and cure of mental troubles, and therefore in education, that parents and teachers would do well to obtain some clear information on the subject. The following narrative (slightly modified) by Mary Alden Hopkins appeared in *Everywoman's World* (Toronto) for January, 1916, and puts the essentials of the psycho-analysis method and treatment with great clearness and simplicity.]

When a little girl was seven years old a queer habit of smacking her lips grew beyond her control. At the same time she developed a curious way of walking. Her mother tried in vain to break her of these habits.

A doctor treated her for St. Vitus' dance. Under his care she grew much better, but the lip noises and jerkings would sometimes come back when she was tired or excited. After a time a psycho-analyst became interested in her. A psycho-analyst is a neurologist who treats nervous diseases by analysing the subconscious mind of the patient. Her analyst sought the reason why she smacked and limped. He knew that to attempt to repress these outward signs without finding what lay behind them was like trying to stop a headache without knowing whether it came from the stomach or the eyes. The analyst picked her up on his knee and asked:

"Why do you smack your lips?"

She considered the matter with her head tipped on one side.

"I don't know," she replied; "I can't help it."

"Of course you can't," agreed the analyst, "but it would be interesting to know why you do it. You know there is always a reason for everything."

At first she couldn't remember when the habit began. But the analyst had patience and tact, and knew a great deal about children. After a time she recalled the beginning. Two years before her mother had told her the reason she must always have her window open at night was because she mustn't breathe the same air twice. When she breathed it in it was good air, but when she breathed it out it was bad air. She drew an unexpected inference from this lesson in hygiene. She thought that since she was for ever making good air into bad air she was injuring the air. "Perhaps," she thought, "I can kiss it well again, the way mother kisses my bumps well." Then began the funny smacking noises—little healing kisses to the air. The habit became automatic. It continued long after she had forgotten the reason.

Next the analyst found out about the stooping motion. She was afraid she hurt the floor when she stepped on it. Perhaps, she thought, if she touched it gently now and again the floor would understand how sorry she was. The analyst did not laugh at the child. He explained in simple words the chemistry of air and the senselessness of wood. When the reason for the kisses and the touches was removed the motions ceased—somewhat as the rash disappears when the measles are cured.

This influence of the subconscious mind over conscious actions has been shown by the analysis of thousands of cases of children and adults, of normal and abnormal individuals. At one extreme a new-born babe has no past experiences to influence his impulses. At the other extreme an old man has a lifetime of more or less forgotten loves, angers, jealousies, sorrows, joys, fears and desires to determine his simplest action. Even a child has a little store of affections, eagernesses, shocks, and griefs which slip easily from the forefront of memory back into the deep unexplored recesses. In Europe, where psycho-analysis is better known than here, women are taking up the analysis of nervous children as a profession. The chief requisites are a thorough knowledge of psychology, great patience, and a sympathetic attitude. A psychologist ministers to a child's mental, spiritual, and emotional development, just as a general practitioner ministers to its physical development.

One psychologist told me about the first child she analysed. James ate with appetite, played vigorously, and slept like a dormouse. He satisfied his parents in every way but one—he couldn't learn his lessons. Matters came to such a pass that they called in a psychologist. She became the boy's governess and settled down to study him. Now if a child is neither physically handicapped, as by adenoids, poor vision or malnutrition, nor mentally subnormal, the trouble comes from an emotional disturbance. It is obvious that a boy's lessons will suffer if he thinks too much about baseball. It is equally true that lessons will suffer if his thoughts are drawn away by some deeply buried subconscious phantasy.

James would sit for hours over his book, hands clutching his yellow locks, lips mumbling the words in dogged determination. When he tried to recite he did not know a word he had been studying. Yet the lad was no fool in other matters. The analyst knew that though eyes and lips were on the lesson, the mind was far afield. It was her task to discover where. James couldn't tell her. He honestly thought he studied hard. She listened very carefully to all he said, hoping to discover the distracting interest.

One morning the analyst, glancing out of the window, made the casual remark: "I see Miss Hess, who was your teacher last winter."

The boy looked out. A moment later he spoke.

"Will you give me a stamp?" he asked.

The psychologist wondered by what twist his thoughts had gone from the sight of his teacher to a stamp. Very carefully she questioned. Starting from this clue she found that James hated Miss Hess! That he hated all teachers! That the sight of the teacher had set him mentally composing a letter to tell her how completely abominable she was! In his imagination he had written the letter, sealed it, and was asking for a stamp.

Though the analyst had now discovered the root of the trouble, her task was only half done. Gently and tactfully she compelled James to face squarely the ugly dreams of revenge in which he was half unconsciously revelling. When he realised the time and energy he was spending in these childish phantasies he was ashamed. Now that James understood, he was on the watch, and pulled his mind back, when it went sliding off in a day dream. He began to learn his lessons like any boy, and the analyst went on to her next case.

A mother cannot analyse her child's subconscious mind. That requires special training. But if she understands how the child is swayed by hidden influences she has a basis from which to proceed intelligently. Naughtiness, queerness, tempers and crying fits are simply signs of what is going on in children's minds. They cannot be satisfactorily dealt with apart from their causes—and mothers should know this.

Analysts are opposed to crude punishments that repress these symptoms instead of dealing with the conflict which underlies them. When a child is rude, the anger is more important than the words. Scolding may make a little girl hold her tongue, but will not remove the ugly feeling. When a boy pilfers, it is important to find out why he thinks he needs the pennies. A thrashing may drive in the thieving habit. When a boy kicks a dog the bullying impulse must be changed into a desire to protect animals. Infant savages must be tactfully guided into civilisation, not forced into good behaviour. All this takes time and patience and wisdom.

Another analyst told me about many of her cases. Under the technical detail and method lay a principle so simple that any teacher or mother can apply it. "I always try to discover *why* the child cries or lies or steals," she explained. "If I can only find out what is behind the naughtiness I can deal with it intelligently. You would never guess what strange reasons I discover. I find children lying because they want more attention. They prefer dismay and anger to lack of notice. They want to be the wonder of their little world. Often children steal because they are not

loved enough. That sounds absurd, but it is true. The child wants love, but is too young to comprehend his need. He only knows that he wants something, oh, so badly!

"Once a mother consulted me about her two-year-old daughter who had terrible crying fits at night. The mother had done everything to break her of the habit. She had even spanked her. Of course I stopped that immediately, for a child should never be spanked. This child was healthy, so sickness was not the cause. I thought she might be crying to get her mother's company, and told her mother to put her in the next room alone whenever she cried. It did no good. The little girl would come to her mother in the deepest distress, sobbing: 'Mother, I can't stop crying! You'll have to put me in the other room!' That gave me a clue and I discovered the trouble. The child had an abnormal appetite for being noticed, and wanted everybody to be thinking about her. I advised her mother to put her to bed in a distant room and tell her that she needn't even try to keep from crying, for no one would be disturbed. For a few nights she did cry, but no one came near her, and she did not know that anyone was listening. When crying no longer attracted attention she stopped it. She went quietly to sleep every night and slept soundly!"

Suggestions for Study and Practice.

The New Humanism. "The School should evolve towards an idealised model of the world, and simultaneously the world should evolve towards the realised model of the school; perpetual and complementary tasks for the human race. The great statesman sees the nation as family writ large.

"We believe the time is coming when every teacher will be expected to reach a certain reasonable common standard in the three fundamental sources of culture—Scholarship (or Folk) Culture, Nature Culture, and Craft Culture—and that, in addition, he (or she) will be specially qualified in one of these branches, so that every teacher will be a humanist, according to his (or her) bent and character."—*Benchara Branford,* on "The New Humanism," *The Journal of Education,* January, 1916.

Clinical Psychology. "Clinical psychology is not synonymous with medical psychology or psychopathology or psychiatry. Clinical means literally bedside, and was applied originally to the first-hand (bedside) method of studying the *individual* patient. In psychology it designates the method of determining the mental status or peculiarities of an *individual* by a many-sided process of first-hand observation, testing and experiment. The clinical method may be used in the study of normal as well as of abnormal mentality. I suggest the use of the words, *psycho-clinical, psycho-educational,* and *medico-clinical* to designate, respectively, psychological, educational, and medical examinations by the *clinical* method...The psycho-clinicist is concerned with the proper mental hygiene, the correct educational classification and the skilled pedagogical training of the mentally exceptional child. The aim, in one word, of his basic effort is orthogenesis...The function of the psycho-educational clinic is distinctly *orthophrenic*: namely, the righting or correction of the mental functions which are deviating or abnormal, either by the removal of physical handicaps or by proper mental and educational treatment."—*Dr. J. Wallace Wallin,* in his book on *The Mental Health of the Child.*

Notices and News.

Our Journal.—The Journal Committee has had to consider very seriously the question of ways and means with regard to CHILD-STUDY. Owing to the limitation, by the Government, of the supply of paper to the trade, and the greatly increased cost of labour and material generally, the price of printing has gone up very considerably. The Committee felt that it was most desirable that the work of the Association in spreading information concerning child-study should not entirely cease, even in such adverse circumstances as now prevail. At

the same time economy is both a national and an individual necessity. It was resolved, therefore, that the Journal should be reduced to twelve pages of text so long as the War continues. We feel sure that the sympathy and practical support of our readers will be generously extended to the Committee in this matter, and all will hope that we may soon return to the former, or even a larger, size of the Journal.

The Sex Question.—A Research Committee of the Society of Education has undertaken an enquiry, the object of which is, by means of a Questionnaire, to collect from adults information as to the ways in which they, as children, became aware of the facts of sex, birth and parenthood. It is felt that a mass of such information, together with an expression of personal opinion upon the recognisable effect of such means of securing information, should provide considerable illumination of the problem of sex-education.

The Research Committee takes this opportunity of making the enquiry known, and of seeking the co-operation of adult persons who are willing to assist the enquiry by answering the Questionnaire. With a view to obtaining unfettered reply, the Committee asks that the forms should be filled in and returned anonymously.

Application for the Questionnaire should be made to the Secretary of the Research Committee, Society of Education, 9, Brunswick Square, W.C.

A Reading and Discussion Circle has been formed in the South-West District of London. Meetings are held at 69, Hosack Road, Balham, S.W., by the courtesy of Mr. and Mrs. Durrie Mulford. The next meeting is on April 4th, when Miss Dailey will read a paper on "The Psychology of Number," and give a demonstration of her number teaching apparatus. The Hon. Sec. of the Circle, Miss A. M. Teague, LL.A., 48, Lavender Gardens, Clapham, S.W., will be pleased to furnish particulars of the work of the Circle to members of the Child-Study Society.

The Edinburgh Society.—The article on "A New Test for Fatigue," in this number, was read at a meeting of this Society, on March 8th of this year, to introduce a discussion.

The London Society.—The article on "The Unconscious Life of the Child" was read at a meeting of this Society on March 16th last.

A Dutch Translator Wanted.—We have received the first number of a new Dutch magazine called "Kinderstudie," and want someone to review it for us. We cannot offer any payment. Who will volunteer?

Reviews.

Estudios Pedagógicos. No. 1, Second Series. January, 1916. 50 pesetas per number.

This is the first number of a revived educational journal published in Jaén in Andalusia, under the auspices of the Old Students' Association of the Escuela de Estudios Superiores del Magisterio, consequent upon the decision of an Old Students' Re-union in Madrid. Apart from a *critique* of Natorp's "Social Pedagogy," short notices of educational movements, the doings and intentions of the Old Students' Association, etc., and a translation of a lesson in moral instruction from Buisson, it consists of three articles by members of the Association.

Senor Alfonso Barea discusses "The Real Problem of Pedagogy" as a science. Physical education is not part of the science of pedagogics—it is a mere application of physiology; nor is the question of the maintenance of order and discipline in school—that is largely a matter of intuition in the teacher as an artist, aided by empirical rules. Similarly he dismisses the claims of school organisation, hygiene, etc., to a place in the science of education, although these things must be known to the teacher. Further, the educationist as such is not concerned with the *end* of education—that is determined for him—his real concern is with the *means*. The constituting principle of the science of education is "the *efficacy* of each of the means which are employed in each of the moments of the formation of a soul."

Senor Francisco Ballesteros, head of the practising school at Malaga, makes claims for practical studies in school, and lays down principles of procedure, taking as guiding consideration the fact that all practical excellence is arrived at in three stages:—(1) *observation,* (2) *imitation,* (3) *fixation* accompanied by correction, or *criticism.*

Senor Antonio Pasagali y Lobo commences a series of discussions on the "Problems of the Training College," by an article on the peculiar place and proper function of the training college in a system of education, and its differentiation from other institutions by its pre-occupation with method. Incidentally he expresses desires for freedom of teaching in the elementary school.

PUBLICATIONS RECEIVED.—*Journal of Education; Child-Life; The Parents' Review; The Journal of Educational Psychology* (U.S.A.); *Educational Review* (U.S.A.); *School and Society* (U.S.A.); *Child-Life* (U.S.A.); *The Training School Bulletin* (U.S.A.); *School and Life* (Petrograd); *L'Intermédiaire des Educateurs* (Geneva); *Archives de Psychologie; Kinderstudie* (Amsterdam); *Estudios Pedagògicos* (Spain); *El Monitor de la Educación Común* (Buenos Aires).

Child-Study.

The Journal of the Child-Study Association.

Vol. IX.—No. 4. MAY, 1916.

The Unconscious Mental Life of the Child. II.

By Ernest Jones, M.D., M.R.C.P.

It is on the basis of such experiences as the one just described that the child's mind comes to develop the second system of mental activity mentioned above. This differs fundamentally from the first in both its aim and its mode of functioning. We have seen that the effect of a stimulus applied to the mind is to set up a psychical impulse which awakens the memory of something that on a previous occasion stilled this excitation, and the goal of which is to revive the perception that accompanied this gratification. The most direct way of accomplishing this is for the stirred memory immediately to excite a new perception of the same kind in the form of a hallucination. But the bitter experience of life soon shews the inadequacy of this method of satisfying the need, and modifies this primitive mode of mental functioning—or, rather, substitutes for it a second, more practical one.

In the action of this second system the tendency of the psychical impulse to regress, as it is technically called, from the memory picture backwards towards a corresponding perception is inhibited, and the accompanying energy is directed towards other ways of attaining the desired goal, namely, the reproduction of the satisfying perception. The only other possible path to this is a complicated one *via* the motor side of the mind, as a result of which an alteration in the environment is brought about that produces a real perception instead of an imaginary one. Thus an adult who is hungry enters a restaurant and gives an order for food, or takes some corresponding step of a motor nature. Regarded as a whole, it is clear that, however complicated the path followed that leads to the desired alteration in the environment, it in any case represents merely a circuitous route to the same goal, the wish-fulfilment, which in the primary system was attained by the direct but unsatisfactory method of hallucination.

The two systems, therefore, though they aim ultimately at the same goal—the allaying of excitation—achieve this by quite different means; the one leading to imaginary gratification, the other to real gratification. They may in this respect, as well as in others, be compared to the difference between day-dreaming and action as two methods of satisfying desire. We have now to consider more closely the differences in the actual working of the two systems, the second of which supplants and controls the first. There are two main differences between them, and they have this in common: that they are both concerned with a control and *inhibition* of the free movement of psychical energy characteristic of the first system.

Everything in the functioning of the first system is concentrated on this one matter of allowing the freest possible movement to take place throughout the whole system. Thus an excitation passes with the greatest readiness from one idea or memory to another, no form of association being too narrow a bridge to allow of the passage. The well-known characteristics of logical thought are entirely lacking; direct contradictions are ignored, the slightest play on words is made use of, ideas are grouped together that have only faint resemblances between them, and there results a general levelling of thought not altogether unlike the kind familiar to

psychiatrists in the condition of acute mania.

In the second system, on the contrary, a ban is placed on this freedom of movement. The first reason for this is, so to speak, an economical one. As much of the energy as possible has to be reserved for its ultimate purpose of altering the environment by means of motor effort, and so all dissipation of it has to be so far as possible avoided. The energy accompanying the original excitation is localised at its appropriate site, while tentative efforts are made to seek out the memory traces that are most suitable for leading to the desired motor goal. The localisation of the energy produces, it is true, a temporary state of tension at that site, but as soon as the channel is cleared in the appropriate motor direction the localising inhibition is removed and action at once follows.

The second reason for the inhibition in question has to do with the pleasure-pain principle. If the primary stimulus which we have imagined is definitely disagreeable, such as a fright or pain, then incoordinate motor manifestations are aroused, until sooner or later the individual becomes withdrawn from the sphere of action of the stimulus and pain ceases to be felt. Here there is no subsequent tendency to re-animate the painful perception, *i.e.*, to imagine the pain; on the contrary, in the primary mental system there will be a tendency to get away from the painful memory whenever there is any chance of its being aroused, and to excite the memory would bring with it the danger of the excitation passing over, as a regression, into the perception, with the production of fresh pain. This turning away from the painful memory, which represents no doubt a repetition of the original flight movement, is the first example and the prototype of what in later life would be termed psychical repression, and it is an ostrich-like behaviour that is commonly enough to be observed in adult life.

In the first mental system, therefore, anything disagreeable is simply ignored and cannot be incorporated at all in any psychical concatenation; the system can do nothing except imagine the fulfilment of wishes. The second system, on the other hand, cannot ignore the painful in this way, for it has to have at its disposal as many memories as possible in order to use the knowledge of their nature in making its selection of suitable paths for affecting the outer world. It can make use of a painful memory for this purpose only when it is able in some way to prevent the development of pain that stimulation of a painful memory would naturally cause. It prevents this in the same way as we saw above it prevents a diffusion of energy, namely, by exerting an inhibiting and localising influence, in this case, on a painful affect. A common analogy to this in daily life is when a man brings himself in cold blood to speak of a topic which under other circumstances, *e.g.*, when his feelings are not under control, would prove extremely painful; that is to say, although the idea is actively in consciousness he can suppress the feelings connected with it. This affective inhibition, as it may be called, is never quite complete; but, on the other hand, if it fails to take place, then the primordial pleasure-pain principle enters into operation, the memory is discarded, and cannot be used even by the second mental system. This is just what happens in the important mechanism of psychical repression.

We have now given an outline sketch of the two mental systems present in the earliest period of life, and only a few words will be necessary to indicate the mode of transition from these systems into the conscious and unconscious sections of the mind that are met with in later life. It may be said that the first system remains practically unaltered, and constitutes part of the unconscious mind of later years. The second system undergoes a series of progressive changes in development, the study of which belongs to genetic psychology rather than to psycho-analysis. The relationship between the two systems, however, become modi-

fied in a number of important respects, concerning which something must be said.

The control of the primary system of thought by the secondary remains imperfect throughout life, and under a number of circumstances the second one, our logical, conscious thinking, falls partly or entirely under the influence of the first. The most perfect examples of this are in delirium, insanity, and our ordinary night dreams, which is one of the reasons why the study of dreams affords the key to the understanding of insanity. Closely allied to these conditions are the common psychoneurotic "nervous troubles," which are the expression of a compromise between the two systems. The action of the unconscious constantly affects our daily life, our character, judgements, and conduct, in a multitude of subtle ways that cannot be here described; but I may refer to the common occurrence of a total failure on the part of our logical, conscious thinking processes in such matters as apparently inexplicable forgetfulness, slips of the tongue or of the pen, errors in memory, and like tricks of the mind. In all these cases the second (logical) system has fallen under the influence of the first (unconscious) one, and the apparent failure in the mental machinery is really nothing other than the normal, correct functioning of a quite different mental system.

Inadequate control on the part of the secondary system, with the consequent danger of the situation being more or less completely taken over by the primary one, is essentially due to the concomitant action of two factors, both of which originate in childhood life. It has to be remembered, in the first place, that the secondary system develops, especially in its fuller elaboration, more slowly, and consequently later, than the primary one, so that the kernel of the mind remains throughout life the unconscious group of wish-impulses. They cannot be altered or worked upon by the preconscious and conscious parts of the mind, the power of which is restricted to the guiding of these wish-impulses into suitable and practicable directions.

Now among the unconscious and indestructible wish-impulses are a considerable number the fulfilment of which would be in flagrant contradiction with the aims of the later developed secondary system, and these on ethical, social, æsthetic and similar grounds. The fulfilment of such wishes would no longer produce a pleasurable affect, but a disagreeable one, and it is this affective transformation of pleasure into pain that constitutes the essence of psychical repression. What in the child is expressed in this simple form of dislike takes on in later life more elaborate forms of repudiation, condemnation, and so on.

Examples of affective transformation in early childhood are very easy to find: A child of two will in all innocence do things that disgust him when he is a few years older; a boy of five will torture animals, hurt his sister's feelings by destroying her most cherished possessions, and purloin the property of others with a callousness that would be impossible to the same boy a few years later on; a girl of six will wear skirts of a length that would bring a blush to the cheeks of a maiden of sixteen, and will, of course, think nothing of it; and similar examples are a matter of everyday observation. The standards are entirely different at the two ages, as they are in the two systems of the mind, and indeed for much the same reasons.

The state of conflict in which a large part of the primary mental system permanently remains in regard to the secondary system, which later becomes the conflict between the unconscious and consciousness, radically affects the relationship between the two systems. It is no longer possible, in such cases, for the secondary system to restrict its activity to the mere finding of suitable ways to alter the environment so as to bring about a gratification of the wish in question. It is now opposed to the wish itself, and vetoes the gratification of it. This state of affairs is pregnant with consequences for the whole development and activity of the mind. Before the unconscious wish can achieve expression it has somehow to pass the barrier that we described as exist-

ing between the unconscious and consciousness, one which we now see to be a construction of the secondary mental system.

It is rarely possible, at least in mental health, for it to pass this barrier in an unaltered form, and it has to undergo a complex series of modifications before it can emerge in a form suitable to the demands of the secondary system. In this distorting process a certain amount of renunciation is inevitable, at least of the original aim of the wish; and an exchange of aims takes place, the original one being replaced by one better adapted to the standards of the secondary system. The renunciation and exchange are by no means always carried through with the smoothness that might be desired, and the unsatisfactorinesses and frictions so often to be observed in mental functioning can in great part be traced to the difficulties and imperfect success met with in the attempt.

The other factor leading to inadequate control on the part of the secondary system, one which often coincides with the first one just mentioned, is the reinforcement of the primary, unconscious wishes that occurs when they are strengthened by impulses arising from the organic instincts. These are, of course, mainly the instincts of nutrition and sex, and, as the former never enters into anything approaching the violent conflict with the standards of the secondary mental system that the latter habitually does, it is comprehensible that, as is fully confirmed by investigation, sexual impulses are principally responsible for the more serious conflicts between the two regions of the mind.

It was remarked above that the two factors now under discussion both take their origin in the period of childhood, so that it may be appropriate to say here a few words on the much-discussed subject of infantile sexuality, or, rather, on the interesting question of how it comes about that the very existence of so evident a phenomenon can be overlooked and even denied. This I would ascribe to the following circumstances :—In the first place, there is the strong tendency, sometimes fully carried out, artificially to restrict the very conception of sexuality not merely to excitations and their consequences in the genital area, but even to certain selected ones of these, the selection being arbitrarily performed rather on ecclesiastical than on scientific principles.

Now, although no psychologist or biologist would seriously subscribe to such a limited definition, the tendency in question is so strong that, however much reason may say to the contrary, it often continues unconsciously to influence the attitude on such matters. It is, for instance, easy for some people to forget that the appearance of the hair, the depth of a voice, the sparkle in an eye, are matters that have very definite sexual aspects. In the next place—and this is perhaps only another side of the same tendency, there is apt to be concentrated too much attention on the end aim of the instinct, on its culmination in the fusion of the two genetic elements, and the absence of this element in the male below the age of puberty is triumphantly pointed to as proof that no sexual manifestations at all are possible before this period. To maintain, however, that until a given function has attained its final form nothing at all of it can be present is a view that is contradicted by observation of any single function of the body or mind; it would be practically tantamount to asserting, in spite of all the evidence to the contrary, that a boy cannot speak until his voice has "broken."

All that is true in this attitude is that the manifestations of the sexual instinct before and after puberty shew certain striking differences, the earlier manifestations being, as might be expected, more tentative and preparatory in nature than the later ones. If, for instance, one adopts the convenient division of sexual manifestations into the fore-pleasure group, the tendency of which is to pass gradually into stages of greater excitement, and the end-pleasure group, the tendency of which is to procure relief of tension in a culminating act, then one may say that the manifestations before puberty

are almost entirely confined to the former group. Further, the earliest phases in the evolution of the sexual instinct comprise many modes of activity, *e.g.*, various interests in excretory functions, that through repression are made partially or wholly to disappear from sight before the final, adult form of the instinct is attained. The pre-puberty manifestations, therefore, are much more diffuse and undifferentiated than the adult ones, which are developed out of the earlier ones by a gradual process of refinement and elimination. This increasing restriction is brought about by repression of the discarded elements, and is the very reason why the sexual nature of the latter is no longer recognised.

Some characteristic features of the *content* of the unconscious may be inferred from what has been said as to its genesis. That it is predominantly, though by no means exclusively, of a sexual nature has already been indicated. A still more striking feature is its ruthless and absolute egocentricity. It is difficult to convey this without giving examples in detail, but I may, for instance, say that to bring about a European War, with all its appalling desolation, for the sake of a perfectly trivial personal gain, such as a slight increase in salary, is the kind of unconscious phantasy which I know from repeated experience to be not at all an exaggeration. No consideration whatever is paid to the interests or feelings of any other person than His Majesty the Ego.

In this the unconscious exactly reproduces the mental attitude of the infant, as portrayed, for example, by Browning in "A Soul's Tragedy": "The sweetest child we all smile on for his pleasant want of the whole world to break up, or suck in his mouth, seeing no other good in it —would be rudely handled by that world's inhabitants, if he retained those angelic infantine desires when he has grown six feet high, black and bearded." To which it may be added that many more of them find the retention of such desires compatible with the height of six feet than is good for their own peace of mind or for that of the world.

Side by side with this feature may be placed the fact that the unconscious is entirely non-moral. That this is inevitable will be realised when one remembers that the unconscious dates from a period preceding any knowledge of good and evil—hence the legend of the Golden Age of Innocence—and has since remained impermeable to such knowledge. It is a great mistake to call these unconscious impulses immoral; they are not that in themselves, but only when expressed in terms of another world, the world of consciousness. Their own tendency is neither against morality nor for it, but purely and simply towards the satisfaction of their own needs. One might just as well speak of an animal or an insane patient as being moral or immoral; the infantile mind and the unconscious mind are neither. In the unconscious, social, moral, ethical, altruistic, and æsthetic considerations are simply ignored, as completely as though they did not exist.

I have now discussed, though only too briefly, the nature, genesis, content, and mode of functioning of the unconscious mental life of the child, but I have not been able to do more than touch on what is perhaps the most interesting and profitable aspect of the subject from the point of view of child-study, namely, the way in which these unconscious impulses become translated into the more recognisable traits in the child's character. I will conclude, however, by expressing my opinion that for any really serious study of the development of the child's mind a first-hand knowledge of the unconscious mental life constitutes an indispensable basis.

References.—In addition to Freud's own writings, and the three journals on the subject (*Jahrbuch der Psychoanalyse; Imago*; *International Journal of Medical Psycho-Analysis*), the following works may be referred to in the present connection:—Ferenczi, *Contributions to Psycho-Analysis,* especially chapters 8, 9, 10, 13; Von Hug-Hellmuth, *Aus dem Seelenleben des Kindes;* Ernest Jones, *Papers on Psycho-Analysis,* especially chapters 7, 19, 20; Pfister, *Die Psychoanalytisiche Methode.*

A New Test for Fatigue. II.

By James Drever, M.A., B.Sc.

The methods which have been hitherto employed for the detection of mental fatigue, or generally central fatigue, as distinct from local, belong to one or other of two main groups. They are, as it is usually expressed, either direct or indirect. That is to say, they are either attempts to measure mental efficiency directly by the quantity and quality of mental performance, or they are attempts to measure mental efficiency by some subsidiary change, that takes place as a result of mental exertion.

The direct tests have generally been considered the more reliable as tests of fatigue. The most important of those hitherto employed are the following three :

1. *Dictation.* This seems to have been first employed by Sikorsky as far back as 1879. The experiment has since been repeated, mainly as a group or class test, by a number of investigators. Perhaps the best known investigation is that of Friedrich, published in 1897. Friedrich used the test as a group test to trace the rise of fatigue during the course of a school session. He estimated fatigue by the number of spelling errors occurring. Thus he got 40 mistakes before work began, 70 after one hour, 160 after two hours, 190 after three hours. The test is a very easy one to give, but this method of using only qualitative data in estimating fatigue is quite indefensible. We must know at least what relation the errors bear to the total work done. The main objection to the test, however, is the difficulty of standardising it. We cannot easily get dictations of precisely the same difficulty. Even if we could, we cannot simply equate one spelling error to another. Not only are words different as to difficulty, but different words have different degrees of difficulty for different individuals and at different times.

2. *Cancellation,* or some analogous test. In the cancellation test the subject is asked to strike out a certain letter, or certain letters, in a specially prepared sheet of letters, or in ordinary reading matter, as in the leading articles of a newspaper. This test, which was first employed by Bourdon, seems to be one of the best tests hitherto devised. It is, however, very much affected by practice, adaptation, and possibly also by muscular fatigue. In calculating efficency two quantities must be taken into account, the amount done and the accuracy. Whipple proposes the formula, $E = SA$, where E is efficiency, S the total number of letters covered, and A accuracy, which is measured by the ratio of the difference between letters correctly marked and letters wrongly marked, to the total number of letters that should have been marked. The measuring of efficiency by the product of amount done and accuracy is the simplest method of taking the two quantities into account, but it is not entirely satisfactory. Possibly also variability is a better indication of incipient fatigue than efficiency measured in this way.

3. *Calculation.* This is the test most frequently used, and, like the last, can be employed both as an individual test and as a group test. Simple additions or simple multiplications are the most suitable arithmetical processes. Nothing is gained by making the calculations difficult. This must be regarded as a fairly reliable test, but it is a test which requires much care in the elimination of practice effects, and the difficulty of finding a satisfactory formula for efficiency, by taking both quantity and quality of work into consideration, is even greater than in the case of concellation.

These are by no means the only direct tests which have been employed. Ebbinghaus's " Combination Test," and various memorising tests, deserve to be mentioned, but these are generally open to serious objections, and, in our experience, seldom yield satisfactory results with children. The difficulty of marking the "Combination " test is alone sufficient to put it out of court in the meantime.

The indirect tests are all very interesting, and most of them have given rise, at one time or another, to a good deal of controversy. In each case, it is assumed that

central fatigue is accompanied by a deterioration in the function tested, and, if we claim the test as a basis for measuring the fatigue, the deterioration must bear some constant relation to the amount of fatigue. Probably a dozen or more indirect tests have been employed, but five of these deserve special mention. These are :—

1. *The "æsthesiometric index" test.* In this test we measure the smallest distance between two points touching the skin, which enables the subject to say that there are two points. This is historically the most famous of the indirect tests. Originally the most extravagant claims were put forward on behalf of this, as a test for fatigue, though at the present day it is generally held that the "æsthesiometric index" may indicate the presence of fatigue, but it is a very unreliable measure. In this test, however, as in most of the other indirect tests, it will be observed that we have only one quantity to take into account.

2. *The sensitivity to pain test.* A special piece of apparatus, known as an algesimeter, is employed to measure sensitivity to pain. For the present, this test is under a cloud owing to the extraordinary position, arising as the result of Binet's work. It was at first maintained that fatigue *increases* sensitivity to pain, while Binet maintained that fatigue *diminishes* sensitivity to pain, and put forward the test as a test of fatigue on this basis.

3. *The dynamometer test.* Muscular efficiency is tested by the dynamometer. The advocates of this test therefore claim that mental fatigue reduces muscular efficiency. Comparatively little work has been done with this test. It seems fairly good, but is not very delicate, while familiarity with the apparatus is necessary, and local muscular fatigue tends to develop very rapidly, the effects of any mental fatigue being thus masked.

4. *The ergograph test.* Here again we have a test of muscular efficiency. A considerable amount of work has been done with the ergograph, but the same objections hold as in the case of the dynamometer, and there is no reason to suppose that the ergograph gives any better results than the dynamometer, if indeed it gives as good.

5. *McDougall's "dot-marking" test.* This is a test somewhat analogous to the cancellation test. Though it is a comparatively new test, it has undoubtedly yielded good results, and appears to be fairly reliable. It is more of a mental test than any of the others, depending mainly on concentration and control of attention, the subject requiring to mark dots as they pass across an aperture at varying points along the aperture.

Rate or rhythm of tapping, reaction time, persistence of visual sensations, occular accommodation have also been suggested and employed as a basis for fatigue testing. It will be noted that all the five we have described, and all these, with the exception of rhythm of tapping, can only be employed as individual tests. This is a decided disadvantage, from the point of view of employment for school investigations. Hence, up to the present, nearly all study of fatigue in school, by way of collective experiment, has been restricted to the employment of one or other of the direct tests.

Recently a very interesting test has been added to the list of indirect tests. Within the last twelve months Dr. Isaac Emery Ash has published the results of a study of fatigue in which he employed "reversible perspective" figures as a test. He argues that the study of muscular fatigue shows the first and constant result of physical exertion to be "a loss of control over the direction motor impulses shall take." If analogous conditions hold as regards mental exertion, then any test which indicates loss of control over the direction of mental activity will be the kind of test we require. With respect to the assumption that loss of control is the first and chief symptom of mental as of muscular fatigue, it is worth noting that the value of most of the tests, hitherto employed, depends largely on the mode in which they indicate the concentration of attention, of which an individual is capable at any time. Ash argues further that, if

we can find a test which measures the same process or processes, always and under all conditions, which gives us a result involving only one variable, and which " will be interfered with rather than aided by the exercise of other functions," we have all that we can desire in the way of a test for fatigue. And such a test is " reversible perspective."

(*To be continued.*)

Parent Educators.

By Professor Bidart.

Translated by Miss M. S. Ryan, B.A.

2. It is not sufficient to love our children, *we must make ourselves loved by them.* To do this, we must begin early. By the age of six a child's disposition is to some extent formed, that is to say, if he has not begun to love, he will find it difficult to become loving later on. The baby at first smiles, then he likes being caressed, then he will give a kiss himself. Presently he will do without so much outward affection for the sake of giving pleasure to those he loves. These are the stages in the development of a child's love for his parents.

Caresses. Accustom your child from the age of six to eight months to give you kisses, to smile at you and show his love for you in various little ways; a little later, to kiss you morning and evening, when you come back from a journey and so on. " I don't want to force my child," says some romantic mother, " I want him to love me of his own accord." And what if he does not? Will you leave him alone when it is a case of his forming some good habit? First make him acquire the habit, then he will continue it with pleasure and delight. Should he occasionally forget, do not say anything, but when he asks you for some favour, treat him coolly, he will be surprised; you will explain your reason and, according to the circumstances, you will either grant or refuse the request.

Deeds and acts of self-sacrifice. Never forget that love grows by exercise, just as the body grows by eating. A child must be given opportunities of practising the love he feels. In every such opportunity, he experiences a pleasure, and this repeated will encourage him to do the same again. For instance, require little services so that you may reward him for his good conduct; ask for his help in some little duty in the house; accept the little sacrifices that he will voluntarily impose on himself, *e.g.* if we are ill he will deprive himself of the pleasure of going out, or even of rest. Anything that he will do should be taken in the spirit in which it is given; the best way of inspiring devotion is to know how to accept it, and it requires nobility of nature to accept worthily. Do not say, " It is good for you to do it, but it really does not matter to me," which is both untrue and stupid; but rather, " It is good for you and it gives me pleasure." There is happiness in being with someone to whom one has done a kindness; let us strive to make our children feel that we are indebted to them, it will please them and they will try to increase our indebtedness.

And let us be careful not to expect too much. If the child tries to do what is beyond his capacity he will end in disaster —this is a point often overlooked. The affections can only be exercised gradually, just as is the case with bodily movements. A child will not run until he can stand upon his feet.

In the same way you must wait for the growth of the affections. You cannot expect a child to feel an emotion beyond his age, or make him show a feeling which he is not capable of experiencing. Another common mistake is to expect a child to feel what we feel. We ascribe to him feelings which are proper to the adult; we must remember that everything must come *from* him. If we try to get the child to show some impossible virtue, one of two things must happen: either he refuses to show it and hardens his heart, or he pretends a show of it and acts the hypocrite. This is what happens if we deceive ourselves about his powers and act in ignorance of the laws of his being. Then when

perhaps we find out our mistake, we sometimes commit another error—we blame the child for his want of feeling, forgetting that " nothing irritates children more than this perpetual prying into their feelings." We give way to our disappointment, again forgetting that " nothing shuts up feeling so much as the sight of a grief which is not understood." Let the fruit ripen slowly, it will do so in sunshine and good weather, but not by the continual application of a pruning-hook. It is often the parent's impatience which spoils the child's nature.

3. *How to make filial duty understood.* The father will explain to the child its duty towards his mother, and the mother the duty towards the father. Neither parent can dwell on his own claims to be loved. A mother cannot say to her child : " You owe your being to me, for I fed and nursed you," and similarly the father cannot say, "You owe everything to me, for I brought you up and supported you by my labour and hard work "—it is the mother's duty to point this out to the child, who is likely to forget it. As soon as the father or mother perceives that he or she is the favourite, far from making an unworthy use of this preference that parent will say, " It is not right for you to love me more than your mother (or your father). You must love us both alike; you owe as much to the one as to the other."

One of the most inconsiderate questions often put to a child is the following : " Whom do you like best, papa or mamma? Which is kinder to you? " Never permit any mischief-making friends to suggest such a thought to your child.

Let us ourselves also set our children a good example in the way in which we cherish and respect our parents. It is not only children who need our tenderness, remember the aged, too. If, unfortunately, the grandparents are dead, respect their memory, visit their graves and bring up your children to imitate their virtues.

4. *Fraternal affection.* The elder girl in the family is the more beautiful, or at any rate she passes as such. She has the prettiest frocks, all the little attentions and show of affection, also all the flattery. Everything she does is right. Should she strike her younger sister, the action is quite allowable; the younger one is not the favourite. *She* must wear her sister's old frocks; *she* must endure contempt and neglect; *she* is always lazy or naughty. If at table she eats as much as her sister she is scolded for eating too quickly or too greedily.

The married elder sister pays a visit to her parents. You should see her airs towards the little Cinderella of the family : " Fetch me so-and-so. Now do so-and-so. What an untidy wardrobe ! This room *is* dirty, etc., etc. And the mother will begin to scold and despise her younger daughter, the one who, after all, does all the work and keeps things going smoothly. Now the mother who ceases to love one of her children, or who shows favouritism, is more unjust and cruel than any stranger could ever be. To see such treatment once, or even merely to imagine it, is enough to make one resolve never to show any preference, unfairness or injustice.

The following rules of conduct will sufficiently show ways of avoiding these mistakes :—

1. *Never do anything yourself which may give rise to jealousy.* Let there be perfect fairness in the children's clothing, food and pleasures. When one child receives some treat, let the others receive it too. Especially let there be the same show of love and affection to all the children. It happens sometimes that the year-old baby is nursed and fondled and petted to excess; the parents never speak to the child but in terms of " Darling, angel, my treasure," etc., etc. ; whereas the child of seven stands by, waiting for some sign, but remains unnoticed and forgotten. " Children," as Mme. Guizot says, " are always ready to welcome any event, whatever it may be. Now the arrival of a little brother is a great event. The elder child will certainly receive him with delight if the parent is careful to give him something to do with the newcomer, and makes the new arrival add some fresh interest to his life rather than take any away from it.

A parent should frequently talk of his little brother to his child; the baby cries, both parent and child must be sorry for him; the baby sleeps, the parent calls the other child to look at him, to come quietly so as not to wake him. Thus the little stranger will arouse the elder child's curiosity and interest, for he will be told that he was once little, too, and the nobler feeling of pity will arise, for he will know himself strong in the presence of the weak."

You will find that the development of this instinct of protection will work wonders in your child. Thus you will say to him: "You must amuse baby, if you don't he will be cross. Look after him carefully, if not he will hurt himself." Is it likely that a child, treated like this, will ever be jealous, or will ever be inclined to resent attentions bestowed on his younger brother? *He* does not need all this care; he can walk and talk; he is grown up. He feels important just because he is trusted to look after someone; he is no longer a child. The other is not to be considered a rival, but someone weaker than himself and so needing his protection. *Thus out of evil cometh good.*

But jealousy may appear on the other side, namely, in the younger child. You cannot now appeal to the protective instinct because the jealous child is the weakling. In such a case it is still the stronger child who must find the remedy and help to cure the other. You must teach your child to try by every means in his power to win his little brother's love, never to take any advantage of his own superiority of age, strength or intellect, to be good and helpful—in short, almost to make excuses for his priority, for this is generally the cause of the younger one's jealousy. At the same time, you must redouble your care and affection: "Am I no longer your friend?" You must excite such a sentiment. There must be equality in esteem and approbation, saving always the particular esteem that is deserved by the one who makes great efforts to correct himself of some fault. You must never say, "I like your sister best; she is a better girl than you." When there comes an opportunity for praise, say simply: "Good girl," without adding, "That is better than so-and-so." Never make invidious comparisons, especially in regard to good qualities. Perhaps your little boy appeared to you a prodigy at six months. What a difference with Julia! Julia was not so sweet-tempered. Julia did not laugh at that age, and so on. Remember remarks like these to make use of them in bringing up your children, but do not use them yourself.

Never try to make a child do anything through jealousy. Suppose a little child does not want to eat: "Come, make haste," you say, "your brother will eat it up if you don't"; and the younger child will eat it up rather than leave it for his brother. This is a stupid way which a great many mothers have of wrongly correcting their children. "He shall have a prize, but you shan't" is the kind of threat which some fathers are fond of making. One child wheedles favours from the company; another child comes up and absorbs all their attention. Then the first child is upset and angry, and everyone laughs at him. The new arrival is ostentatiously kissed, apparently in order that the other may be more and more upset. Thus people will heedlessly provoke and play with a passion which may later on ruin the child's life. To show such a lack of management is almost as bad as to show injustice.

Notices and News.

The Civic and Moral Education League is holding a Summer School of Civics at Aberystwyth, from August 5th to 19th. Full particulars can be had from the Secretary, 6, York Buildings, Adelphi, London, W. C.

New Ideals in Education.—The Committee of the Conference have arranged to hold their next Conference at Oxford, from July 29th to August 5th. For particulars apply to the Secretary, 24, Royal Avenue, Chelsea, London, S.W.

The National League for Physical Education and Improvement has arranged a course of lectures, by highly qualified lecturers, on "The Care of the School Child," to be held from May 3rd to July 19th. Information can be obtained from Miss Halford, 4, Tavistock Square, London, W.C.

Reviews.

Report of the Fourth Annual Conference of Education Societies, 1916. Pp. viii., 265. The Darien Press, Edinburgh. Price 1s. 6d.

This is an excellent report of the papers and discussions at the Conference held at the University of London in January last. It would be difficult to find a cheaper and better collection of up-to-date matter on many phases of education.

Report of the Conference on New Ideals in Education. Pp. iv., 200. Copies from Miss M. B. Synge, 24, Royal Avenue, Chelsea, London, S.W., for 1/6 (post free).

This contains the papers read, and the Chairmen's speeches, at the conference at Stratford-on-Avon in August, 1915. While chiefly occupied with the Montessori Method the conference was not confined to this, but concerned itself with "the new spirit" in education, "the essentials" of which "are reverence for the pupil's individuality and a belief that individuality grows best in an atmosphere of freedom."

The papers are on: ideals in education, freedom and liberty, Montessori work, rural education, music, babies, and drawing. The paper by Mr. W. Taylor on "Steps in the development of a rural school" is a model of how to go straight to the point and then stick to it; while Dr. Percy Nunn makes some admirable criticisms on some of the ideas of those who had preceded him, which should lead to the re-reading of their remarks.

The report is well printed, and full of valuable and interesting suggestions by well-known and competent people. We heartily recommend it.

The Athenæum Subject Index to Periodicals, 1915. Education, pp. 16. Price 1/- net. Theology and Philosophy, pp. 34. Price 1/6 net. The Athenæum, Bream's Buildings, Chancery Lane, London, E.C.

All students of education will warmly welcome these admirable indexes—two out of twelve subjects on similar lines. No less than one hundred and three periodicals are indexed under Education. The annotations showing the nature of the contents of articles are most helpful. There is to be an annual volume including all the lists, with not less than ten thousand entries, for £2 10s. 0d.

This publication, issued at the request of the Council of the Library Association, handsomely redeems us from the reproach of not having had such an index long since.

Research in Mental Deviation among Children. By Lewis M. Terman. Pp. 15. Stanford University, California, U.S.A.

This is a very interesting pamphlet giving "A statement of the aims and purposes of the Buckel Foundation" Research Laboratory, at the Stanford University. It sketches lines of research on (1) backward and feeble-minded, (2) delinquent or potentially delinquent, (3) nervous, morbid, or psychopathic, (4) exceptionally talented, and (5) normal, children. The Buckel Foundation was established in memory of Dr. C. Annette Buckel, who bequeathed an estate worth between ten and fifteen thousand dollars, to be used for the benefit of mentally defective children.

Journal of the American Institute of Criminal Law and Criminology. Pp. 160. Bi-monthly. North Western University Press, Chicago, Ill. Price 60 cents a number, 3 dollars a year (3.50 foreign).

This should prove a very helpful magazine to all who are dealing directly or indirectly with actual or potential criminals. The contents of this number (Vol. vi., No. 5) are:—Editorials; the early development of English criminal law; the criminal—why he is, and what we do to him; insanity and criminal responsibility; fines and community protection; the paroling of prisoners; a classification of border-line mental cases amongst offenders; intelligence and delinquency; who is feeble-minded; model jail architecture; juvenile delinquency in small cities; propensity to crime; judicial decisions (court cases); notes and abstracts (from reports, etc.); reviews and criticisms; correspondence; bibliography of recent European literature.

The Mental Health of the School Child. By J. E. Wallace Wallin, Ph.D. Pp. 463. New Haven (U.S.A.), Yale University Press, 1914. London, Humphry Milford.

Dr. Wallace Wallin is Professor of Clinical Psychology and Director of the Psycho-Educational Clinic in the School of Education in the University of Pittsburgh. In this volume he has collected a number of papers and addresses written in the years 1909 to 1913 and revised and brought up to date, all of them dealing with some aspect of what he terms the psycho-educational clinic in relation to child welfare. In the preface he states that the various papers aim to show the aid which practical psychologists and expert educational consultants hope to render in the important work of diagnosing, identifying, studying and training feeble-minded, backward and mentally abnormal children in the schools.

From the nature of the case the book covers a very wide field in rather a disconnected manner, but if one were to fix upon the central idea it would be this:—"We have recently developed a new type of clinical work without the full recognition that it cannot successfully be done by either the physician or the psychologist without a definite technical preparation." The time prescribed as necessary for a student to be graduated from a university clinic as a thoroughly competent examiner is from two to four years. The work and affiliations to the departments in a university of the psycho-educational clinic are discussed in great detail, as also its various functions in regard to institutions and the State, such as the schools, juvenile courts and vocational bureaux. One cannot help being struck by the great impetus that has been attained by work of this kind in the United States, and the recognition it has already received in the universities, colleges, normal and medical schools.

Dr. Lightner Witmer, to whom the term "clinical psychology" is due, was the pioneer, and he opened a small psychological clinic in the University of Pennsylvania in 1896. The principal development of the movement has, however, taken place within the last three or four years. The claim which is made is that clinical psychology is an independent science dealing with a separate body of facts, that is not adequately handled by any existing science, and that she handles these facts by methods of her own, the facts being those concerned with individual mental variation. It deals with the study of individual cases of deviate mentality; particularly with those types which are amenable to improvement or correction by psycho-educational processes. Such a science is distinct from both psychology, psychiatry and pedagogy, but is more closely allied to the latter than to either of the former.

This book appears to us to go far to make good such a claim. No one of the other sciences has hitherto adequately covered this ground, and without special development and extension it is not fitted to do so. The recognition of a new science, with all the consequences that flow from this, involves a duplication of personnel and increase of expenditure both in the centres of higher education and in the field of application of the work. The author contemplates a psycho-educational clinic over and above a medical clinic for every school system. Theoretically, no doubt, there is much to be said for this view, but however it may be in America, we are not prepared to meet such a demand here, particularly at a time when, owing to the War, other important reforms have had to be postponed. Moreover, the more precise and skilled diagnosis of the mental deviations of school children can only be of real value when it is practicable to make the special pedagogical provisions for individual cases in accordance with the results attained, and it seems doubtful whether, even in America, it will be possible to provide the special arrangements to which the psycho-educational clinic points, on at all a general scale.

One of the most useful objects of research to which the new science might devote itself is to ascertain more certainly the results that can be obtained by applying the most approved methods of dealing with various types of deviates. It is only so that a just opinion can be formed as to how far the development of the psycho-educational clinic can justify itself by superior results to those reached by less perfect methods. This our author takes too much for granted, whereas in general he brings evidence in support of his views.

One cannot help feeling that the whole trend of the work of the clinics owes much of its inspiration and substance to the ideas which Binet and Simon enunciated and reduced to practice. Dr. Wallin himself gives full appreciation to that work, and evidently makes regular use of their tests. Nevertheless, the chapters devoted to the Binet methods are mainly critical not only of the tests themselves, but even more of the excessive claims that have been made for them by some enthusiastic followers, and include a very just protest against the idea that any amateur, by applying the tests of intelligence, can either arrive at a reliable result, or even so can form a good judgment on the whole mental make-up of the child tested. For the proper use of the tests a considerable training in that work alone is necessary, and the results must then be checked before being utilised by the expert in arriving on this and other grounds at a broad judgment on the case. He admits that the most satisfactory single measure of a child's mentality is undoubtedly the test of his intellectual development. This furnishes the best preliminary working basis for diagnosing mental age. But to fix a child's mental age fully we must also have especially graded tests of motor-industrial performances. To all this one can give ready assent.

Elsewhere he speaks of collecting data for constructing a motor or industrial scale, and says that from the results thus obtained it should be possible to construct such a motor scale. His work was unfortunately interrupted, but one cannot help feeling that though it may be easy to collect data it is extremely difficult to construct a scale. At present no such scale exists. He quarrels with some of the Binet workers because their definition of "feeble-minded" by the scale does not accord with his own conception, which he nowhere defines; but if Binet's line has been drawn at the wrong place in the scale of intelligence as shown by practical consequences, it can readily be altered; at any rate the scale method gives some definite meaning to the terms used, which is a great gain. Dr. Wallin himself makes four grades of sub-normals between the "moron" and the "normal," viz., doubtfuls, border cases, backward, retarded. He gives no indications by which any one else could use his classification, and it seems doubtful whether such great subdivision serves any useful purpose from the point of view of differentiation in practical school life.

It is pleasant to note that the author recognises that there is a class of deviates in the upward direction which has special claims for recognition and consideration, such as the precocious and specially talented children; but this promising and fruitful aspect of the matter does not apparently figure very prominently in the work of the clinic or the schools, if one may judge by the space given to it in this work.

The volume is a mine of valuable information on all matters connected with the subject at issue, and Dr. Wallin, besides being unusually equipped for such work by his doctorate in psychology and education, and his practical experience in institutions for epileptics, feeble-minded, and insane, as well as in medical clinics and in ordinary school teaching, brings to his task a fine enthusiasm tempered by good judgment and a broad outlook.

Child-Study.

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Handwriting.

I.—Methods and Tests.

By Dr. C. W. Kimmins.

The Acquisition of the Art. It appears that we are on the eve of a very great improvement in the teaching of handwriting. Whatever may be said for or against what is known as the Montessori System, there is general agreement that the exercises preparatory to handwriting, both tactual and purely motor, mark an advance of the greatest importance.

The learning of writing being without much intellectual content is usually a tedious task to an intelligent child, but under this method handwriting springs quite naturally from an interesting course of preliminary tactual and muscular training. No difficulty is experienced in using the writing instruments, and the act of writing becomes as interesting an occupation as reading.

In a small number of schools outside the County of London, where Montessori methods have been in continuous use for a considerable time, the results obtained in the direction of handwriting have been very striking. Children of six and seven years of age can write with great freedom, and short essays written by them on familiar topics, the subject matter of which presents no difficulty, are considerably beyond those obtained in ordinary schools in the quantity written, the firmness of the handwriting and the ease of expression. Speed tests given to children of six and seven years of age give results considerably in advance of the averages taken from five infants' departments in London schools. It should, however, be stated that at one school not conducted on Montessori lines but in which there was a lot of preliminary handwork, the results were better than in any other school examined.

The preparatory exercises in the Montessori System are, moreover, of such a nature that very young children can perform them without the slightest risk of over-strain or of bringing into play the finer accessory muscles at too early a stage. In fact, from the point of view of the tactual portion of the training, the earlier it is undertaken the better. It is well known that with very young children the favourite, and for a long time the most valuable, method of obtaining information about external objects is through the sense of touch, and it is surprising that in the infant school in the past this valuable sense has been very little used for educational purposes.

It is agreed that the sooner a mechanical act like that of handwriting becomes automatic the better. Provided always that the preliminary operations can be made thoroughly interesting and physiologically harmless to the child, there can be no possible object in postponing them to an age when the time can be more usefully employed in exercises involving more intellectual content.

The Use of Lines.—The use of lines, and more especially the double lines between which the writing takes place, the letters being required to touch the upper and the lower lines, has been much discussed, and a movement has been gaining force lately in favour of the total abolition of lines at all stages.

The single line for purposes of orientation is a labour-saving appliance, and the devices used in essay-writing on unruled paper to secure accurate spacing and fairly straight lines are often clumsy and ineffective. Some children experience no diffi-

culty in spacing and orientating properly, but they are the exception, and probably on the whole it is better to keep the single lines until the difficulties of spacing and direction disappear naturally.

Whether in the very early stages of writing double lines may be used for very short periods to aid in obtaining letters of uniform size may be a matter of debate. In any case the use of double lines should not go beyond grade III. of the infant school. If children of standard age are blindfolded and write from dictation it is generally found that the shape and uniformity of size of the letters are well maintained without any visual guidance. The use of double lines, therefore, for normal writing cannot be defended. It is, in fact, harmful physiologically, as for young children the strain on the eyes and also on the finer accessory muscles of the fingers may produce serious results.

A powerful argument against the use of double lines at any stage is that it interferes seriously with the rhythmical motion in handwriting. An interesting experiment, recently performed by a distinguished expert in handwriting, demonstrated clearly, by means of a pressure curve of the result, that writing between lines produces a serious interference with the rhythmical nature of the writing, and that the interference persists for some time after the abolition of the double lines. Anything which substitutes for the subconscious automatic guidance of the muscles by their own nerve impulses a sustained tentative effort involving another sense organ must necessarily embarrass the speed and accuracy of production.

The Manuscript Type of Writing.—Attempts have been made from time to time to introduce what may be termed manuscript writing into the schools. The subject was fully discussed at the London County Council Teachers' Conference in 1913, and I would refer those interested in handwriting to the report of that conference. I would also suggest as very instructive and interesting literature on the subject Thorndike's "Monograph on Handwriting" in the "Teachers' College Record" for March, 1910, and Miss Mary Thompson's little book on the "Psychology and Pedagogy of Handwriting," in which she gives an excellent account of the researches on this subject up to 1911. I would also draw special attention to a paper in the "Journal of Educational Psychology" for October, 1913, by Daniel Starch on the "Measurements of Handwriting." These books are all to be found in the Education Library at the Embankment.

The chief advantages to be obtained from the manuscript type of writing are: (1) That it practically removes the great disadvantage of two kinds of script with which the child has to contend in learning to read and to write. (2) It is particularly easy to acquire, involving only combinations of straight lines and circles, with the result that the serious obstacle to the child of the ascending loop is postponed until a later stage of technical skill is reached. (3) All children can acquire it. There are no failures as in the case of ordinary writing. (4) It is very legible and forms a good basis for a permanent style of writing.

Speed of Writing.—Thorndike and Daniel Starch, in their experiments on handwriting in America, found that great differences existed in the speed at which children wrote in different schools. In London elementary schools there is also the greatest possible variety. In one school good careful writing is the objective, the letters being well shaped and the form being all that can be desired, but no great speed is acquired by the close of the school course. Another equally good school places less stress on the perfect form of the letters, and, provided the writing is legible and reaches a fairly good standard of form, pays more attention to the volume written in a given time.

In three girls' schools of normal type in which fairly rapid writing has been acquired, the following results were obtained by tests given to all the children (1,064):—

7	years of age	... 21.6	letters per minute.
8	do.	... 24.2	do.
9	do.	... 34	do.
10	do.	... 47.6	do.
11	do.	... 59.7	do.
12	do.	... 64.5	do.
13	do.	... 70.5	do.

In two girls' schools in which no lines were used either in the infants' or senior departments the speed tests were somewhat disappointing. In the lower ages the results were distinctly below normal, and at the age of thirteen the average was only forty-five letters per minute. In the boys' departments in the same schools, working under the same conditions, the results at the lower ages were also below normal, but they picked up in the upper part of the schools, and at the age of thirteen reached an average speed of 62.1 letters per minute. From this it would appear that the absence of the base line militates against speed, especially in the lower part of the school.

In some schools in very poor districts the speed of writing appears to suffer. In one such school the average results in the girls were 12.4 at the age of seven, and 42 at the age of thirteen; and in the boys the speeds were, respectively, 9.4 and 44. In both departments the increase from age to age was surprisingly regular.

There is much greater uniformity in the speed of writing in boys' than in girls' schools. Thus in four of the six boys' schools tested for speed results the numbers of letters per minute at the age of thirteen were, respectively, 67.4, 64.2, 60 and 59.2 letters per minute. The other cases are quoted above. The total number of boys who did the tests was 1,920.

In testing for speed of children who have adopted the manuscript type of writing, it must be remembered that the results are based on very few children—one hundred and eighty-six in all—and that the children have only been using this method of writing for a comparatively short time, in no case exceeding three years. The numbers are only given up to twelve years of age, as the larger school is still using the old type of writing in the upper classes. They are compared with the total girl results and the total boy results for the same ages :—

AGE.	MANUSCRIPT.	AVERAGE FOR ALL GIRLS.	AVERAGE FOR ALL BOYS.
7	21	18.8	13.9
8	23.6	21.4	17.4
9	31.8	29.3	25.1
10	30.5	36.1	32.9
11	37.7	44.5	44.7
12	41.4	49.3	46.6

It will be seen that as far as speed is concerned the children at the ages at which they have practically only used this type of writing, namely, seven, eight and nine years of age, are in advance of average boys and girls throughout the schools tested.

In carrying out the speed tests in the London schools I used the same material as that used in the American schools, viz., "Mary had a little lamb," but I tested the children for five minutes, whereas the American tests were for two minutes. As the children undoubtedly wrote less quickly at the end of the time than at the beginning, it is evident that a two minutes' test would have given somewhat higher results. The five minutes' test is much more satisfactory than one for a shorter period, and the results are far more reliable. The English child writes quite as quickly as the American child. The statistics would seem to indicate that this is not so, but this is largely due to the shorter period for testing and to the fact that the speed tests were given in America at the end of the school year. Thus grade II. results are those of children who were on the point of passing into grade III. The same applies to other grades.

The results of the tests are given in actual, not mental ages. It was found in classes with a wide range of age that the older children almost invariably wrote more quickly than the younger children in the same class. This is probably because practice counts for so much in speed writing. Age for age, however, the clever child writes more quickly than the dull child. This is a general experience.

In Thorndike's work on the "Quality

of Handwriting in Teachers and Children," he found that children of thirteen and fourteen years of age wrote much better than their teachers; and he found that with regard to legibility no improvement takes place after the age of eleven in the average child. This is confirmed by Starch's experiments. Thorndike goes so far as to say that when a child can write sixty letters a minute in a good, legible hand he had better take to typewriting, as any further excellence in handwriting will be lost after school life is over unless he becomes a clerk and thus keeps in continual practice. Thorndike concludes that there is no fundamental close correspondence of intellect with motor ability, and Kavanagh confirms this from his investigation of results obtained by candidates in Civil Service examinations.

The speed tests in London were made on 4,408 children: 2,488 girls and 1,920 boys.

I am carrying on a series of speed tests in different schools on a larger scale, and hope eventually to obtain sufficient material to establish norms for the different ages of school life.

II.—An Experiment in Handwriting.

By Mrs. Kate L. Grainger.

The experiment concerns the development of a clear, individual handwriting from a printed alphabet, or perhaps it would be better to say, from an alphabet in which the letters are of the simplest character, only the really essential parts being retained. This alphabet only to be taught, the ordinary script letters being dispensed with entirely.

I should like to say, that the experiment is really the outcome of a talk with Mr. Cherrill, H.M.I., about handwriting in general, which I had in the autumn of 1913. In this talk, as far as I can now remember, the chief points discussed centred round:—

I.—The lack of quality and style; in fact, individuality in the writing of children just about to leave school, and perhaps more so in the case of children who have left school only comparatively a short time.

II.—The difficult muscular effort which the looped letters always presented to the younger children. This fact concerning the younger children's difficulty was particularly noticed, as we happened to be watching a young child make the ordinary script letter "f." Finally I remember this was said: "Might it not be possible to develop handwriting through printing, and not from the usual script?"

Upon thinking this conversation over, I, too, wondered if it might not be possible to develop a handwriting from a very much simpler alphabet than the ordinary script letters; from an alphabet which consisted only of the essential parts of the letters, and which would therefore be much more readily and easily written by the younger children, whose control over the finer muscles of the hand is not sufficiently developed to enable them to make the looped letters successfully and well.

I then decided to try and see how far it was possible to carry this idea into practice, and hence the beginning of the experiment.

The first thing to be determined upon was the alphabet to be taught. This was done by consulting a book and taking the essential parts only of each printed letter. A few letters presented difficulties, *e.g.* the letters a and g, and there are a few divergences from the usual printed letters in the alphabet which I finally selected. Since beginning the experiment a few slight modifications have been made in this original alphabet.

Before proceeding further, perhaps a brief description of the school would enable you to understand how the experiment was carried out. The school is a very small one, the average number on the roll being just under one hundred. It is organised in three classes, the lowest being Class III., a and b, which corresponds to Standards I. and II. It was in this class that the experiment was begun. Up to this time the children had been writing the ordinary script and between double lines. Paper having single lines was now substituted for that having double lines, my idea being that when the children were de-

prived of the top line they would be compelled, unwittingly, to combine the efforts of hand and eye in order to obtain even-sized letters.

The children were then taught the shapes and relative sizes of the small and capital letters; then the letters were grouped as words, but the letters were not joined. Care had to be taken also with regard to the spaces between the words.

At the end of the school year (March, 1914) the upper division of Class III. (Standard II.) had to pass forward and become the lower division of Class II. (Standard III.). Here a difficulty presented itself, as this Class II. would now comprise children writing the ordinary script and children writing from the alphabet which I had selected. The results obtained from the six months' work seemed sufficiently promising for me to continue the experiment, so I decided that all the children in the school then under twelve years of age who were writing the ordinary script should be drawn into the experiment. I considered that if a child had over two years to remain at school there was time to develop a good handwriting, even though such a violent change was made.

The girls above twelve years of age kept to the ordinary script writing. All these girls have now left the school, so at the present time all the girls in the school are writing the same style. These children under twelve passed through the same groundwork as Class III. They learned the letters and the spacing and grouping of the letters to form words. Naturally they learned this more quickly than Class III. In Class III. the children have simply to think of the shape of the letter, the grouping of the letters to form words, and the spaces between the words, but this does not continue indefinitely. In Class II. the children are encouraged to express their own individuality by joining the letters if they so wish. They are not taught how to join, nor are they forced to join at all, but the ideal is put before them that they must now try to develop a writing which must be pretty (if I may use the word, and we certainly do to the children) legible, and as rapid as is possible consistent with the aforesaid qualities. The children are encouraged to think of ways of joining the letters, and their ways of joining are criticised usually under the headings of: (1) prettiness; (2) aid to rapidity and ease in writing.

I am now allowing my elder girls still more liberty, in permitting them to incorporate into their writing any letter which they have admired in handwriting which they have seen, provided that the said letter seems to fit naturally into the general character of the handwriting.

I had better say at once that the writing, in my opinion, is more easily taught and readily corrected by the teachers of the lower classes than the ordinary writing from script, owing to the absence of the looped letters and joinings; but this does not hold good when once the children are allowed to join the letters. Here individual guidance and criticism is absolutely necessary, and this, of course, means careful correction on the part of the teacher.

The question has been asked if any particular nib is used, and it was suggested to me recently that a specially broad nib would improve the writing. Personally speaking, I do not think this at all necessary. I have found that ordinary nibs do quite well; and, indeed, I think it much better that the writing should be done with the ordinary nibs, which will always be obtainable by the children when they leave school. Some of my elder girls now write with broader nibs, but this is because they have expressed a desire to use them, some girls having brought nibs from home for that purpose; hence I have no rigid rule but allow individuality full play. In the case of the younger children, it is different. Their efforts ought to be directed towards well-shaped letters, individuality being expressed later on.

The following is a matter of detail, but perhaps had better be mentioned. The time given to formal lessons in handwriting is: one and a half hours a week in the lowest class, corresponding to Standards

I. and II.; half an hour a week in Standards III. and IV.; and twenty minutes in the standards above IV. This is the time which is given exclusively to the teaching and criticising of writing, and is the same amount of time which was previously given to writing in set copy-books. In the dictation, composition, and other written exercises, any very poor writing would come in for individual criticism, but in these exercises it is naturally a secondary consideration.

It might be of interest also to those head teachers of infants' departments who might be thinking of taking some such kind of writing as this—but who have been wondering what effect it would have upon the writing of the senior departments—to know that we have a case at our school which throws some light upon this matter. The kind of writing of which I have been speaking is taken by the infants' and girls' departments in school, but the headmaster of the boys' department prefers to teach the ordinary script. I have asked him how it affects his writing, and he replied that when he gets the boys at about seven years old (the Standard I. is in the boys' department) they have, of course, to be taught the ordinary script letters, and this takes a little extra time, but by the end of Standard II. the boys write quite as well as if they had always been taught the script letters, with this added advantage that the writing is firmer and bolder and shows more decision. He also thinks that the time which was given to the teaching of the script letters is made up for later on, when the boys are taught printing; so altogether he is in no way adverse to it being taken in the infants' department, though he himself does not wish to continue it.

Although the experiment is by no means complete, yet it has been carried on long enough for me to have come to certain conclusions, and some in its favour I have arrived at thus far are :—

(1) That in the lower classes the similarity between the type of the reading book and the letters written by the children is undoubtedly a great help, both in the reading and in the writing.

(2) That the younger children find the writing much easier, as the muscular effort is lessened owing to the absence of looped letters and joinings, and a more uniform standard is obtained.

(3) That again in the lower classes the mistakes are more quickly marked owing to the separation of the letters, and that the individual letters are a better shape. Both my assistant teachers have taught Class III. (Standards I. and II.) and they are both equally certain that the style is far easier to teach than the ordinary script, and that they have obtained better results from their teaching.

(4) That by reason of its clearness—and I think that will be admitted, even by those who do not otherwise like it—it is very suitable for exercises in arithmetic, for use with diagrams, for map drawing, and (in a boys' school) for geometry and drawing in general.

Here I feel I should like to say that there is something about this kind of writing which would, by reason of its very plainness and directness, appeal to boys. I would not venture thus to give an opinion, but I taught in a mixed school for several years, and during that time taught all the standards from II. to VII., so I think I may claim to know a little about boys.

It is wrong, I know, to generalise from a few examples—so I say this with all diffidence—but I have found that a bad writer of the ordinary script, is not so bad a writer, and shows decidedly more decision and firmness, when taught to write in this particular style and allowed to develop upon her own lines.

III.—The Introduction of a New Method in Handwriting.

By Miss Golds.

The method of handwriting now under discussion is really not new at all; it is very, very old, and dates back to the time when writing was considered an art, and when the work produced was something really beautiful to look at.

Towards the middle of 1914 we worked

out an alphabet and gave experimental lessons to the lowest class in the girls' school. The style proved more difficult than was at first anticipated, and it was found necessary to modify many of the letters. In working out the scheme the chief difficulty was in making the letters simple enough for the youngest children. While working out a less elaborate scheme our Government Inspector visited the school, and in the course of conversation asked if it had ever occurred to me to adopt this particular style of writing. On being told of our attempt, he produced some papers written by the children of Mrs. Grainger's school. On examination these papers were found to be written almost in the same style as that which we were again about to try. Mrs. Grainger kindly allowed two of my assistants to visit her school, where they saw this particular style of writing being done by all the girls. This proved a great help. Our scheme being completed, we threw over the old system and began in real earnest to teach the new early in November, 1914.

From the time we started, the new style was adopted all through the infants' school and up to and including Standard IV. in the girls' school. In the infants' school we have found the new method much easier to teach. This kind of writing seems to come almost natural to the little children. It was the loops and joins of the other style which bothered the little ones and spoilt their letters, even when they had learnt to make them properly. Then, too, some of the letters were most difficult for them.

In this style the foundations of both the capital and small letters are extremely simple, being only straight and slanting lines and simple curves, and being also very few in number. After learning these it is quite easy for the little ones to make letters. When the letters are mastered, the children begin to write words by simply standing the letters side by side. Thus the children can write at a much earlier age, and the writing becomes a great aid to their reading.

The youngest children in the infants' school draw their letters in sand. I should like them to be able to make them in wax.

The other classes in the infants' school first make their letters very large on millboards or brown paper, and afterwards write with lead pencils on white paper, using only a single line. The foundations of the letters required are practised at the beginning of each lesson.

In the lower classes of the girls' school the capital and small letters are taught in groups and continually practised.

The best ruling for the youngest children is that found in the L.C.C. No. 9 Exercise Book. In the middle classes of the girls' school the names on maps formed a useful basis for introducing the method.

A short extract or verse was selected, and the children were told to write it, forming each letter separately as they would do if it were part of a name on a map. All written work was subsequently produced in the new style.

The teachers in the girls' school much prefer this style of writing to any other, and while not thinking it easier, feel that much better results can be obtained. Two of them have adopted the style themselves, and one says, "I have had over fifteen years' experience as a teacher, and never before have I been able to obtain such good results in so short a time."

In introducing the new system the common faults we found in the earlier stages were :—

1. Making the letters too narrow or too wide.
2. Irregular spacing of letters and words.
3. Careless spacing.
4. Sloping the letters backwards.

But the advantages are many, for :—

1. The progress in writing is much more rapid.
2. The children write well at a much earlier age.
3. The writing is more easily made uniform in height, as the majority of the letters are begun from the top, instead of having to be started from a slanting upstroke.

4. It can be more easily read and therefore more easily corrected.

5. It cannot develop into scribble.

6. I am sure it is going to be an aid to spelling, for this reason—the children see the words as wholes and they reproduce them almost in the same form.

One objection raised to this style of writing by those who have not taught it is that children will never get speed with it. I cannot quite understand why so much stress is laid upon speed. Surely our first duty is to teach the children to write and not to get speed. May I quote from Mr. Johnston's paper on "Writing" in answer to this accusation? He says:—"Rapidity is a matter of practice and necessity, but to teach a child to write well should be our immediate aim. Good writing will develop into a rapid hand."

As a matter of fact we find that our children write just as quickly as they wrote in the old style. After the scheme had been working a year we gave a speed test, with the following results:—

Standard I. wrote 31 letters per minute.
,, II. ,, 33 ,, ,, ,,
,, III. ,, 39 ,, ,, ,,
,, IV. ,, 38 ,, ,, ,,
,, V. ,, 46 ,, ,, ,,

Another speed test was given six months after, with these results:—

Standard I.—33 as against 31.
,, II.—45 ,, ,, 33.
,, III.—56 ,, ,, 39.

The children in these standards had learnt the style almost from the beginning.

Standard IV.—42 as against 38.
,, V.—50 ,, ,, 46.
,, VI.—62.

No children in Standard VI. were writing in this style when the last test was taken.

In comparing speed tests there is one thing which I think ought to be borne in mind—that it is not fair to try to compare things of different qualities. Good writing ought not to be compared with scribble.

Notes on the Illustrations.

Figures 1 and 2.—A comparison of the writing of two girls of eleven years of age at the same school and at the same speed, viz., sixty-one letters per minute.

Figures 3, 4 and 5.—The actual speed tests of three girls of St. Luke's School of eleven, twelve and thirteen years of age respectively who attained the greatest speed for these ages.

Figure 6.—The scheme of writing at St. Luke's School.

Figures 7 and 8.—The scheme of writing at St. George the Martyr's School.

Figure 9.—The scheme of writing at Cromer Street School.

Figure 10.—How letters are obtained from simple forms.

Figure 11.—Starch's experiments. The three curves show the legibility, form, and speed of handwriting of American children for different ages.

Figure 12.—Two curves showing the results of speed tests by 4,408 London school children (2,488 girls and 1,920 boys).

Figure 13.—Essay written at full speed by a girl of eleven years of age at St. George the Martyr's School.

Figures 14 and 15.—Specimens of large and small writing (Prof. Selwyn Image).

Figure 16.—Illustration from Mr. Grailey Hewitt's monograph on handwriting.

The Child's Point of View on Fairy Tales.

By William M. Forrest, M.A.

The question of the fairy tale is still an open one, and the following experiments were undertaken to study it from the child's point of view. The method followed throughout was to set the children at their ease, read them a fairy tale, and by seeming careless remarks set them talking. The child is a little egotist, and when he talks his conversation is always about what interests him; he does not, like grown-ups, hypocritically pretend to an interest in what pleases his listeners.

That I might the better watch the reaction of the children I took six from the class immediately beyond the infants' de-

Age 11 years

Mary had a little lamb Mary had a little lamb
Mary had a little lamb. Mary had a little lamb
Mary had a little lamb. Mary had a little lamb
Mary had a little lamb. Mary had a little lamb
Mary had a little lamb. Mary had a little lamb
Mary had a little lamb. Mary had a little lamb
Mary had a little lamb Mary had a little lamb
Mary had a little lamb Mary had a little lamb
Mary had a little lamb 1

17 times

FIG. 1.

Age 11.

Mary had a little lamb. Mary had a little lamb. Mary had a little lamb. Mary had a little lamb. Mary had a little lamb. Mary had a little lamb. Mary had a little lamb. Mary had a little lamb. Mary had a little lamb. Mary had a little lamb. Mary had

FIG. 3.

Aged 11 years

Mary had a little lamb Mary had a little lamb Mary had a little lamb. Mary had a little lamb Mary had a little lamb. Mary had a little lamb Mary had a little lamb. Mary had a little lamb Mary had a little lamb. Mary had a little lamb Mary had a little lamb. Mary had a little lamb. Mary had a little lamb. Mary had a little lamb. Mary had a little lamb. Mary had a little

FIG. 2

Age 12

Mary had a little lamb Mary had a little lamb Mary had a little lamb Mary had a little lamb Mary had a little lamb Mary had a little lamb Mary had a little lamb Mary had a little lamb Mary had a little lamb Mary had a little lamb Mary had a little lamb. Mary had a little lamb Mary had a little lamb. Mary had a little lamb Mary had a

FIG. 4.

Age 13

Mary had a little lamb Mary had a little lamb Mary had a little lamb Mary had a little lamb Mary had a little lamb Mary had a little lamb Mary had a little lamb Mary had a little lamb Mary had a little lamb Mary had a little lamb Mary had a little lamb Mary had a little lamb Mary had a little lamb Mary had a little lamb Mary had a little lamb Mary ho

FIG. 5.

A B C D E F G H
I J K L M N O P
Q R S T U V W X
Y Z

a b c d e f g h i j
k l m n o p q r s t
u v w x y z

FIG. 6.

St George the Martyr Girls School
Holborn

Writing Scheme

Infants and Junior Classes
(below Standard IV)

A B C D E F G H I J K L
M N O P Q R S T U V W X
Y Z

a b c d e f g h i j k l m n
o p q r s t u v w x y z

FIG. 7.

Senior Classes

A B C D E F G H I J K L M
N O P Q R S T U V W X Y Z

a b c d e f g h i j k l m n o
p q r s t u v w x y z

Pairs of letters which can be joined conveniently:-

ai au ar an am ap at ad ah aj ab
ak ay av aw
oi ou or on om op ot od oh oj ob
ok oy ov ow
ei eu er en em ep et ed eh ej eb
ek ey ev ew

FIG. 8.

FIG. 9.

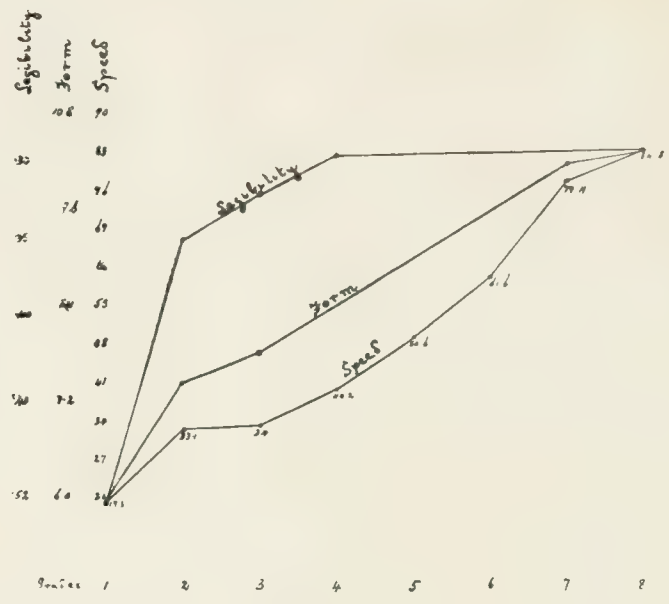

FIG. 11.

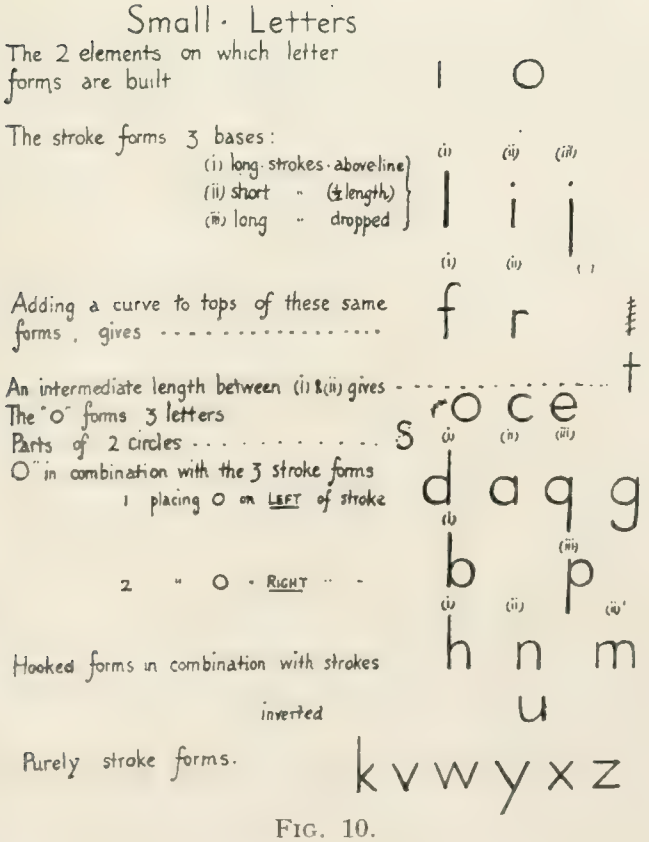
Small · Letters
The 2 elements on which letter forms are built
l o
The stroke forms 3 bases:
(i) long · strokes · above line
(ii) short " (½ length)
(iii) long " dropped
(i) (ii) (iii)
l i j
(i) (ii)
Adding a curve to tops of these same forms, gives
f r
An intermediate length between (i) & (ii) gives
t
The "o" forms 3 letters
Parts of 2 circles
s o c e
(i) (ii) (iii)
"o" in combination with the 3 stroke forms
1 placing o on LEFT of stroke
d a q g
(i) (iii)
2 " o · RIGHT " ·
b p
(i) (ii) (iii)
Hooked forms in combination with strokes
h n m
inverted
u
Purely stroke forms.
k v w y x z

FIG. 10.

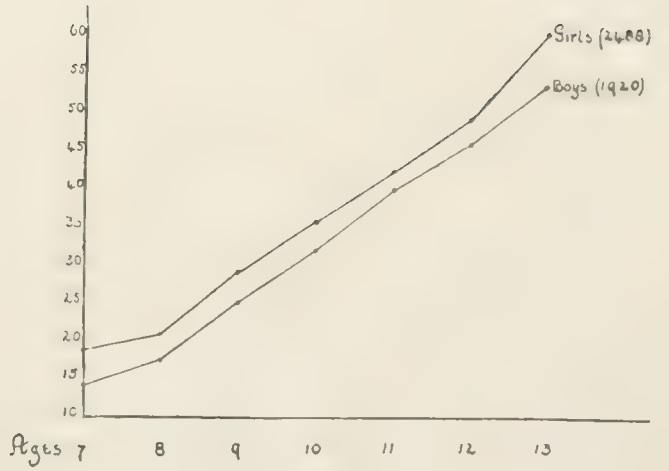

FIG. 12

Age 11yrs

The Air Raid on London, Sept 8th 1915

On Sept 8th it is was about half past ten and I was in bed. My parents had gone out to accompany some people who had come to see us They were at the top of the street when Crash!, it was a bomb I woke up, but I was not afraid for I thought it was thunder and lightning. The noise of the bursting bombs was like thunder and the firing at the Zeppelin was like lightning

Soon I heard the lady on the first floor saying very loudly, "Come in the cellar quickly, because I believe they are bombs"

By now my mother was coming up the stairs, she opened the door, and took me down in the cellar

I think it is very wicked indeed to do such a low thing.

FIG. 13.

20 Titsey Street. W.

March 26. 1916.

My dear Dr. Kimmins.

When you ask me to write you a letter which you can photograph, I at once become so self-conscious, so nervous, and all the pens so obstinate, that I can scarce write at all! Here is my poor essay at it, however – as you mustn't be denied. I take it that a single sheet is better for your purpose than more. That is why I am so scanty. I will write more at ease and at length on another sheet – not for exhibition! Believe me

very sincerely yours.

Selwyn Image

FIG. 15.

The Rev. S. D. Headlam

Wavertree,

St. Margarets-on-Thames.

FIG. 14.

It is indeed a much more truly religious duty to acquire a habit of deliberate, legible, and lovely penmanship in the daily use of the pen, than to illuminate any quantity of texts.

FIG. 16.

partment, seated them comfortably round a fire in the teachers' room, and read the fairy tale. The following is a *résumé* of a typical story.

Sidushka, aged ten, lived alone with her father in Bohemia, her mother being dead. She kept house for him and was "the best little housewife in all Bohemia." Left alone during the day she was not afraid, for her father told her no harm would come to her if she did not touch the Water King's red lilies. The Water King was an evil spirit, who lured people into his crystal prisons by means of his lilies, which seemed to say, "Come, pluck me." One day when Sidushka was drying her linen a frog jumped on to one of her sheets. It refused to move until, in fun, she promised to dine with it. It kept her to her promise in the evening. Following the frog, she lifted a stone in the brook and descended a stairway of water to the frog's home. Then she had dinner with the frog. While the froggies were being put to bed Sidushka explored. Out of curiosity she lifted an inverted jar and released a dove, then another and another—spirits of the Water King's prisoners. The Water King appeared, but after an exciting chase she escaped up the stairway.

Two of the children followed the story with a mere modicum of interest, but there was no mistaking the expressions of the others. They exchanged smiles with each other and with the teacher when the little girl talked about making jam, washing, and darning. All looked serious when the evil spirit was mentioned. When the frog spoke there was no responsive light in the pupils' eyes—perhaps these particular children were *blasé*. When Sidushka was before the unknown, or in danger, several little hands were raised to the mouth, as in apprehension. The baby frogs did not interest, as I had anticipated they would.

By the vaguest of vague questions I got the children to talk. One girl got talking about the little housewife and went off to tell about a little tea-set she had at home, thus showing that it was real life or imitations of it which take first place in her interest. One of the boys was emphatic: "For me, anyway, the most interesting part was where she was going to lift the jars." He knew something was going to happen, and was puzzling his head to think what it would be. Another boy, being asked if he had ever seen water-lilies, said he had. "But," said he, "I think I know what the red lily was meant for—a whirlpool; it goes round and round and gets deeper in the middle." Now what does this signify? Because we think they like it we give children fancies, illusions, and symbols, but this child of seven rejects these and puts a rational construction on them. The symbols may have misled the others, but sooner or later they will have to look around and get rid of their false notions.

Another boy got talking about frogs. "We used to chase them under stones in the burn in the summer; but they don't live in houses." Here he went off to tell about bringing them home and having good fun frightening his sisters. The fairy element was ignored throughout, yet these children were only seven.

With a similar number of children from the same class I repeated the story in the same setting. Here, again, the most interesting part was agreed to be the turning of the jars. Something was going to happen, and it is action which interests them. One girl liked the story because it was funny—the frog speaking and dining. Here the interest was the same as that of an adult, for, be it remembered, the incongruous is perhaps the greatest source of humour to grown-ups. For the most part the expressions and movements during the reading were similar to those of the first party. By effacing the teacher in me I succeeded in getting the children to talk. "That would be a funny house to live in." "Yes, the stairs would be washed away." "Then nobody could really live under the water." "Yes, divers can." At this point discussion of the story ended as the children vied with each other in telling what they had seen of divers. "They wear iron boots."

"There are holes to see through." "A tube comes up to a boat." "I saw divers making a new bridge at——" Another boy thrilled us by describing a submarine picture he had seen at St. Andrew's Hall. Thus the fairy tale was ignored, and for all my trying I could not get them back to it. Action and real life, with all its everlasting wonder and beauty, overrules fictions and fancies with these children.

With the next party, who averaged a little over eight, I could not get on such easy terms. Again the most interesting part was voted to be the lifting of the jars. "What do you think of the frog's house?" "I wonder the water does not get down to it." "My aunt has a mansion and a secret passage leading down to the Forth." They got back to real life. The little girl went on to tell us about the secret passage, but none of the others volunteered conversation. They had never seen frogs or water-lilies, and I concluded that their imaginations wanted stimulating with the wonders of nature, and not by stories of this kind passively received.

The next party, children of seven from the infants' room, enjoyed the story immensely. One little girl volunteered that she liked best the beginning, where the frog jumped on the sheet; it was so funny —the girl chasing it off. "That was a funny house, the frog's." "Frogs don't live in houses, they live in the mud." Remarks on the story :—"The girl would be too big to go down the wee stairs. The fish might have pulled her down—(apparently an attempt to explain the story and make it compatible with real life). She would sink in the mud. I don't think she would be drowned"—(knowing that it was a fairy tale).

In all the above, where the children talked, they ignored the fairy element and brought the tale back to real life and their own experience. Those dreamy pupils with little experience, the non-talkers, I take it, are being badly influenced if, as they seem to do, they accept the story passively. To assure myself that these results were general in the school, I read a different story to six pupils from the class beyond the infants' room, thus bringing the number of children up to thirty.

The story opens with the description of a little Basuto boy who had lost his father, but longed to have one like other little boys. His father was not dead, but had been carried off by the Evil Spirit of the Water. The boy goes in search of his father, getting instructions from a frog. He sticks a spear in the ground as a sign. "If it stands I am safe. If it falls I am lost." To help him to escape from a tiger, the frog turns a stone into a huge rock. He goes to the edge of the world and steps into the sea, at the bottom of which he finds such a world as the one he has just left. His father has been turned into a snake. He takes the snake home, and the priest exorcises the Evil Spirit by fire.

In this case the children who seemed most attentive would not talk. Those who did talk never mentioned the Evil Spirit. When I read, "The water rose and rose till it covered him, and——" a chorus came, "Then the spear fell." An adult forgets about the spear, but the children know something is going to happen, and are waiting expectantly for it.

The following are some of the remarks made by the children : "Funny thing, the stone growing." "There's a hill near the Lead Hills, where I go my holidays, made by men throwing up the earth they have dug out." "I wonder if there really is land under the sea?" "My uncle is a miner. He works three miles under the railway station. He goes down the pit and then walks away along." "Funny thing that years should seem like days under the water." "My mother told me that a little girl of five was drowned, and when they found her a month later she looked like fifteen." "When my father was coming from Africa a man was drowned. When he was found two years later he was swelled with the water." Here, again, the wonders of the natural world swamp everything else.

One little girl of seven liked real stories best. "And why do people write fairy tales?" "To please us," she said.

Eye-strain and Retardation in School Life.

By Frederick J. Mann.

From *School and Society* (U.S.A.), Jan. 1st, 1916 (*By permission*).

A study of the schools of Cleveland showed that 27.6 per cent. of all the children were laggards and that every eighth child was a repeater. This study also showed that of the pupils,

50 per cent. withdrew before reaching the fifth grade.

75 per cent. withdrew before reaching the eighth grade.

95 per cent. withdrew before finishing the high school. (From U. S. Bureau of Education Bulletin, 1913, No. 39, "The Elementary Industrial School of Cleveland, Ohio," by Professor W. N. Hailman.)

During the school year 1909-10 the writer examined 660 children in the Poughkeepsie grade schools. Included among those examined were all those scholars who were repeating the same grade for a second year and many others with poor scholarship who had been so reported by their different teachers. This work is tabulated as follows :—

Children examined	660
Found defective	559
Laggards by 1 year	122
Laggards by 2 years	65
Laggards by 3 years	41
Laggards by 4 years	17
Laggards by 5 years	9
Total laggards	254

Among the defects found above were :

For eye troubles	320
For ear troubles	10
For tonsils or adenoids or both	240

This and a study of 34 truants shows, by the following table, that physical defects are a factor in retardation and truancy. I believe that truancy often is the result when the pupil is several years a laggard and where the cause is some physical defect and not the result of mental deficiency. Many children fail to keep up with their age standing in the grades, partly at least, it would seem, because they have some physical defect that prevents their obtaining their full share of education from year to year.

34 Truants—Poughkeepsie, 1908-1909.

	Having Physical Defect.	Without Defect.
Normal age in grade	5	2
1 year dull	3	1
2 years dull	9	—
3 years dull	4	1
4 years dull	3	—
5 years dull	5	—
6 years dull	1	—
Totals	30	4

Defects found in Above.

Of eyes	15
Of eyes and throat	10
Of various conditions	5
Total	30

The next table is from Gulick and Ayer's book on Medical Inspection of Schools, second edition, page 158. It is founded on work in New York City in 1908, covering all grades, ages 10 to 14 inclusive, and the standard is "age in grade." This table shows the marked relationship of physical defects to school scholarship, with the exception of defective vision.

Percentage having	Dull.	Normal.	Bright.
Enlarged glands	20	13	6
Defective vision	25	25	29
,, breathing	15	11	9
,, teeth	42	40	34
Enlarged tonsils	29	19	12
Adenoids	15	10	6

Not being satisfied with the figures given here for defective vision, I present a table of 191 consecutive cases of school children whom I have examined in my private practice and for whom I have furnished lenses. My table easily shows that the cases of myopia average bright. These children usually have good vision for book work, but fail when tested at twenty feet. These are the cases that cannot easily see the blackboard, and that the average teacher or school physician, not especially trained in eye work, quickly detect. I

believe that in Gulick and Ayer's table they found the myopia cases and failed to pick out many of the hyperopic or eye-strain cases. The following table as easily shows that the hyperopic cases are much

191 Eye Cases.

	Myopia (Near sighted).	Hyperopia (Far-sighted or Eye-strain).	Totals.
2 years bright	5	6	44
1 year bright	8	25	
Normal, age in grade	8	35	43
1 year dull	6	35	104
2 years dull	1	35	
3 years dull	—	14	
4 years dull	—	10	
5 years dull	—	3	
Totals	28	163	191

more common than the myopic and turn the balance for eye defects as a cause of retardation.

The next table shows the hyperopic cases by themselves, by ages and grades.

163 Cases of Hyperopia or Eye-strain.

Ages.	Grades. k	1	2	3	4	5	6	7	8	High School 1	2	3	4
6.....	1	1	1	..	..	..	..	..	..	..	..	..	..
7.....	..	8	6	1	..	..	..	..	..	..	..	..	..
8.....	..	4	1	4	1	..	..	..	..	..	..	..	..
9.....	..	2	–	3	5	1	..	..	..	..	..	..	..
10.....	..	2	6	4	6	1	..	..	..	..	..	..	..
11.....	..	2	4	7	11	2	1	2	..	..	..	..	..
12.....	..	1	2	2	7	7	3	2	..	..	..	..	..
13.....	..	..	..	2	5	7	4	4	1	..	..	..	..
14.....	..	..	..	1	2	–	3	2	4	1	..	..	..
15.....	..	..	..	..	..	1	1	1	1	–	1	..	..
16.....	..	..	..	..	..	1	–	–	2	–	2	2	..
17.....	..	..	..	..	..	..	..	..	..	..	1	1	..
18.....	..	..	..	..	..	..	..	..	1	..	..	..	..
19.....	..	..	..	..	..	..	..	..	..	..	..	..	1
Totals	1	20	20	24	37	20	12	11	9	1	4	3	1

The following re-arrangement of this table warrants a little study. It shows that eye-strain, as a factor of retardation, is not evident up to the age of nine years. Between the ages of ten to fourteen years it becomes a tremendous factor and then apparently at the age of fourteen or fifteen these children drop out of school life.

The Same 163 Cases of Hyperopia or Eye-strain (Re-arranged).

Age.	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Bright.....	2	7	5	6	1	3	2	1	1	1	2	..	..	..
Normal	1	8	1	3	6	2	3	4	4	–	2	1	..	..
Dull.....	–	–	4	2	12	24	19	18	8	4	3	1	1	1

The following scheme gives a comprehensive view of the variety of refractive errors that need lenses for their correction. In this chart, as elsewhere in this paper, for the sake of clearness I have ignored the effects of astigmatism. This is because, while any eye case may be complicated by astigmatism, it merely adds more strength of the lens, either plus or minus, in one meridian or axis, as against the corresponding right-angle axis. This does not affect the arguments I am presenting in this paper. To make the next chart and those following it clear it is necessary to remember that distance vision is usually tested at twenty feet, and this distance is recorded as the numerator of the fraction, while the number of the line of letters read on the test card is the denominator. Thus 20/20 means that line 20 is read at 20 feet and reduces to 1 or normal. 20/15 is better than normal, while 20/100 is one-fifth of normal. Lenses are measured by the French system, one diopter being the unit, and are either plus (convex) or minus (concave). A +1 spherical lens is the strength that a person at the age of 45 usually needs as extra help for reading, and A+3 lens is so required when the age of 60 is reached.

One word as to atropine, commonly known as "drops." The hyperopic eye has the power of over-action of the function of accommodation to make vision clear in many cases. This, however, is done at the expense of the person's health, for it brings that group of symptoms which I have discussed as eye-strain. The use of atropine is the only correct way to examine a child's eyes in order to determine the correct lenses as it overcomes for

the time being this over-action or spasm of the accommodation. Hence the "vision with atropine" shown in the charts to follow gives the real condition of the eye.

pupils and two adults and present the "eye-strain" group of symptoms. The last eight cases are of children about the ages of ten to twelve also with eye-strain

Scheme of Refractive Conditions.

	Myopia.				Normal.	Hyperopia.			
Synonym	Near sighted					Far sighted			
Anatomical condition	Long eye					Short eye			
Lenses needed	Minus (concave)				None	Plus (convex)			
Lens strength	—3	—1.50	—1	—.50	0	+.75	+1	+1.75	+3
Vision	20/200	20/100	20/70	20/50	20/20	20/15	20/20	20/20	20/40
Vision with atropine	20/200	20/100	20/70	20/40	20/20	20/50	20/70	20/100	20/200
Distance vision	Poor —				Good	Good		Impaired	
Near vision	Usually good				Good tillage of 45 when plus lenses are needed for reading	Poor		Very poor	
Usual symptoms	Sedentary, indoor tendencies					Eye strain: Headaches, restless, nervous, inattentive, print blurs, letters run together.			
						Eye muscle unbalance		Often cross-eyed	

In conclusion I wish to show some illustrative cases, principally of school children, which make clear the actual symptoms and conditions that occur in this work. The first twelve cases comprise ten

but who have come before the truancy courts instead of having received, earlier in life, a more rational, preventive and scientific treatment. Where two fractions for vision are given, as in case No. 9,

Twelve Eye-strain Cases.

No.	Vision.	Vision with Atropine.	Lenses Ordered.	Symptoms, etc.
1	20/15	20/50	+ .75	Eyes inflamed. Eyes tire with study. Letters blur. Glasses gave relief and improved school work.
2	20/15	20/70	+ .75	Age 12. 2B. Very nervous. Headaches. Eyes hurt after study.
3	20/20	20/50	+1.	Headaches. Eyes tire with study. Glasses allow comfortable use of eyes without headaches.
4	20/15	20/70	+1.	Restless. Nervous. Jerky motions. Quiet and no school for one year had been ordered. After one month's use of glasses went back to school well.
5	?	20/70	+1.25	Out of school most of past year for treatment for granulated lids, without complete eye examination.
6	20/30	20/100	+1.50	Age 8. First grade. Fourth year of school. Shows what vision of 20/30 may indicate.
7	20/40	Adult	+1.75	Indigestion. Nervous. Heart palpitation—"Nervous prostration." Glasses relieved symptoms, with glasses gained 23 lbs. in 5 months.
8	20/20	20/100	+1.75	*Cross-eyed.* Four years later; still wearing glasses. Eyes straight and comfortable.
9	20/20 20/40	Adult	+1.75	School life troublesome. Sleepy in school. Excelled out doors. Eye trouble not suspected as a child.
10	20/200 20/20	20/200	+2.50	*Cross-eyed.*
11	20/40	20/200	+3.	Age 13. Fourth grade. Six years in first, second and third grades. Headaches. Poor close vision.
12	20/40	10/200 20/200	+3.50	*Cross-eyed.* Dislikes reading and study. With glasses school work much improved and eyes straight.

the first is for the right eye and the second for the left. A single fraction means the same vision in both eyes.

I believe that the expedient and most successful treatment of these cases is not always glasses. Of course, if these pupils are preparing for college and professions, proper correction of eye defects is imperative. But many children must drop out of school as soon after the age of fourteen as the law allows to go to work, and among such children, when eye-strain symptoms exist, it is often very hard to persuade the child to wear the glasses or the parent to provide them. The alternate is just what is being done in the elementary industrial school at Cleveland, where the school life is arranged to consider the needs of hand-minded or practical-minded children, and gives such children a rational amount of practical, industrial work. I believe that when Cleveland picked out the children "not less than two years behind grade," the "dullards and incorrigibles," they were picking out many eye-strain cases.

Dr. Wirt at Gary, in his flexible school system, seems to be giving the same eye-strain cases that rational amount of non-book work that keeps them in school and interested, even if they are not able to secure and willing to wear spectacles.

Eight Truants.

No.	Vision.	Vision with Atropine.	Lenses Needed.	Symptoms, etc.
1	20/15	—	+ .75	Age 12. Fourth grade. Three years Laggard Truant. Sent to State Industrial School at Industry.
2	20/40 20/20	20/50 20/30	+ .75	Age 13. Had glasses without atropine which were not satisfactory. Inattentive. Eyes hurt. Poor reader. Print blurs. Headaches. Runs away from home.
3	20/20	20/70	+1.	Age 12. Sixth grade. Constant slight headaches. Poor close vision. Reading hurts. Eyes inflamed. Frequent truant. Threatened with Reformatory. Glasses helped.
4	20/40	20/100	+1.25	First grade. Age 10. On probation. Very large tonsils. Age 14. No attention to eyes or tonsils and stops school at about third grade.
5	20/40	20/50	+1.25	Age 12½. First grade. On probation. Large tonsils. *Cross-eyed.* Does not know his letters. Poor home conditions.
6	20/20	20/200	+1.75	Age 11. Third grade. Two years laggard. Boy says reading keeps him back in classes. Mother says he does not like school and does not try. Boy says eyes hurt. Glasses helped. Glasses lost. Truant. "Industry."
7	20/15	12/200	+2.	Referred by City Judge. Three years in fifth grade. Does not like reading. Says head swims around after reading for 15 minutes. Has always had headaches.
8	20/40	20/200	+3.	*Cross-eyed tendency.* Headaches. Poor school work. Has tuberculosis.

Suggestions for Study and Practice.

The Treatment of Crime. "Under this method [etiological classification] persons convicted of crime would always be examined to see why they had transgressed before any sentence or other 'remedial measure' would be given. In other words, a diagnosis would be made. The use of this method would necessitate a new classification, as it has in medicine. This classification would also drop such terms as thief, vagrant, murderer, and in their place use alcoholic, insane, feeble-minded, and others yet to be evolved. Then the intelligent victim of bad environment could probably be cured and the stupid habitual offender be given permanent custodial care. Classification of individuals must replace the old one of crime. Finally, the whole morale of the prison would change, and just as insane

patients are now going to hospitals voluntarily to seek treatment, so those with anti-social tendencies would be grateful for examination and advice. Indeed, the writer has frequently seen this very thing occur at the Psychopathic Hospital in Boston."—*A. Warren Stearns, M.D.,* on "The Prison of the Future," quoted in *The Training School Bulletin* (U.S.A.), November, 1915.

Talented Children. "The large majority of these were found located in the school below the grade warranted by their intellectual level. The dull children are allowed to become retarded, but the exceptionally bright are rarely given the advantage which is due to their superior intelligence. ...Even genius languishes when kept over long at tasks that are too easy. Our data show that teachers sometimes fail entirely to recognise exceptional superiority in a pupil, and the exact degree of such superiority is nearly always estimated incorrectly. Clinical psychology and experimental pedagogy will nowhere find more fruitful application than in this field... Whether civilisation moves on and up depends most on the advances made by creative thinkers and leaders in science, politics, art, morality, and religion. Moderate ability can follow, or imitate, but genius must show the way. Society, therefore, loses tremendously when the child of exceptionally superior endowments fails to realise his highest potentialities."—*Lewis M. Terman,* in his pamphlet on *Research in Mental Deviation among Children.*

The Teaching of Science. "Science may be a way to seeing the wonder and glory of the universe, or it may be a way to making money, or it may be merely 'stinks.' We want it to be the first of these and not the second or the third; but we want everything else that is taught to be the first of these also. When science is taught or learnt merely as 'stinks,' it has no more virtue than the gender rules in the Latin grammar. Method and spirit are just as important in it as in anything else; its facts become significant and even useful only when they are used to illuminate a right view of the purpose of the life of man.

"That right view is wisdom, a wisdom which may be enriched and confirmed by knowledge; but the wisdom must be taught besides the knowledge and through the knowledge. Without it all knowledge is merely 'stinks,' and deserves to be called by that name. Yet it is certain that wisdom can only be taught through living knowledge and not through dead; and science has this great advantage—that it is the most living knowledge of our time."—From an article on "Wisdom and Knowledge," in *The Times Educational Supplement,* March, 1916.

Obedience as a Vice. "The value of obedience has been greatly over-estimated; it is frequently a vice, and as such a shallow excuse for want of moral thoughtfulness in the individual. The obedience doctrine shirks the whole question of whether or why we should reverence self-constituted authorities. Let us admit that obedience may afford some training in inhibition. It may quite disastrously inhibit the free pursuit of youthful ideals, and render a boy less capable of idealism in the future.

"The perfectly-obedient boy is pathological, doing what he is told at the beck and call of his youngest schoolfellow, an extreme case of suggestibility. We want the kind of boy who can be trusted to do what he ought without waiting to be told. Said an employer: 'That man is not a bit of good: he just does everything he is told. He will never get on.'

"It is quite true that obedience in young people is a convenience to adults who tend to become parasitic on the rising generation. We should be wiser to rely less on their known responsiveness to suggestion, and more on training them to independent moral thoughtfulness."—*Hugh Richardson, M.A.,* on "Character: its analysis and measurement in C.G.S. units," *The Journal of Experimental Pedagogy,* December, 1915.

Notices and News.

The Articles on Handwriting in this number have been specially published in order to enable teachers, many of whom have written to say that

they are anxious to conduct similar experiments, to have material for guidance and comparison. The Journal Committee have authorised special expenditure for the illustrations, so that they might be reproduced in the best possible form, and thus prove most helpful.

The meeting of the London Society at which the papers were read was unusually well attended —some had to be turned away because of lack of room—and successful; so much so that it is hoped to have a further meeting on the same subject in October next.

Extra copies of this number are being printed, and should these prove insufficient still more copies may be provided, if there be such a demand as will justify the extra cost. Those who are unable to secure copies of the first issue should send a postcard to Mr. H. R. Crisp, 45, Corringham Rd., Golders Green, London, N.W., stating how many copies they wish to have.

The Uplands Association Summer School will be held at the Normal College, Bangor, N. Wales, from August 4th to the 21st, this year. Full particulars can be obtained from Miss A. F. Purvis, Lucerne, Knockdene Park, Belfast, Ireland. Parents, with their children, as well as teachers, are invited to attend.

A Summer School of Civics will be held at Aberystwyth from August 5th to the 19th. Details may be had from The Secretary, The Civic and Moral Education League, 6, York Buildings, Adelphi, London, W.C.

Reviews.

A Ferst Reeder in Simplifyd Speling. Pp. 48. The Simplifyd Speling Sosyeti, 44, Great Russell Street, London, W.C. Price 6d. net.

Apart altogether from the merits, and demerits, of the Simplifyd Speling, we are unable to commend this little book except for its printing. It is based on the old mechanical principle of a, e, i, o, u, ab, eb, ib, ob, ub, etc., synthesis of sounds and syllables; and there are no illustrations. The prose is marked off into reading phrases by vertical bars, but not so the poetry. It is amazing that such a first reading book should be issued now-a-days.

Practical Hints to Would-be Nurses. By Felicie Norton. Pp. 35. Scientific Press, Ltd. Price 6d.

Few books contain so much good advice in so small a space as the one before us. Beginning with how best to prepare at home after leaving school for the coming hospital training, the authoress discusses choice of hospital, questions of clothing and equipment and books, and makes excellent suggestions on the care of the feet. Hospital etiquette, the repulsive side of hospital work, and its responsibilities are unflinchingly set forth, and then follow some excellent hints as to conduct during the early days in the wards and the great importance of cultivating hobbies, music and other recreations when "off" duty. No would-be nurse is likely to peruse this unpretentious volume in vain.

School Children: Their Care and Nursing. By Isabel Macdonald. Pp. vii., 115. Scientific Press, Ltd. Price 1/-.

This is a tabloid encyclopædia dealing with many aspects of the hygiene of school children, their infectious diseases, and with first aid, within the compass of 115 small pages. The instruction given is mostly very good as far as it goes, and should be of great assistance to beginners in school nursing, but much must be taken on faith for lack of room for detailed explanations. Thus eggs are mentioned as a cheap and good substitute for meat.

Under respiration, information as to "tidal" air, etc., is given to the exclusion of a note on the floor space for children. In the treatment for running ears one looked in vain for our old friend "the wool mop." The directions for the recognition of infectious diseases are very good, but the chapter on first aid, devoid of any illustrations, is too sketchy to be of much real service and might well be omitted in a future edition to make room for other matters.

Campaign for Clean Milk. Pp. 51. The Saint Catherine Press, Stamford Street, S.E. Price 1s. net.

The aim of this pamphlet is to educate the public as to the importance of a clean and wholesome milk supply. It deals with the different sources of contamination of milk, bovine tuberculosis and its eradication, the conditions of dairy farms and how to improve them, the licensing of milk dealers, certified milk, Pasteurisation, the value of milk as a food, and the National Society's proposals. The pamphlet is valuable from the point of view that it brings before the public the neglect that is far too prevalent of even the most obvious precautions against milk being the means of carrying disease and dirt into the home, and the appropriate remedies. The book is illustrated by photographs.

Annual Report of the School Medical Officer, Staffordshire County Council. Pp. 23.

This interesting report shows that, in consequence of the shortness of staff, etc., due to the War, the number of children who have been discovered to be in need of medical treatment has fallen from six to one per cent. of the school population. Dr. George Reid writes: "It was an attenuated form of medical inspection but not without value."

Publications Received.—*The Journal of Experimental Pedagogy; Journal of Education; Educational Times; Child-Life; The Parents' Review; The Pedagogical Seminary* (U.S.A.); *The Journal of Educational Psychology* (U.S.A.); *Educational Review* (U.S.A.); *School and Society* (U.S.A.); *Child-Life* (U.S.A.); *The Training School Bulletin* (U.S.A.); *Shcola* (Petrograd); *Estudios Pedagògicos* (Spain); *El Monitor de la Educación Común* (Buenos Aires).

Child-Study.

The Journal of the Child-Study Association.

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A New Test for Fatigue. III.

By James Drever, M.A., B.Sc., D.Phil.

It is not quite true to say that, if we can find a test for fatigue, which indicates loss of mental control, which always measures the same process, which is interfered with by the exercise of other functions, and which involves only one variable, we have the ideal test for mental fatigue. We require also a test sufficiently delicate to indicate relatively slight fatigue effects. As we have already seen, under normal conditions of working, the loss of efficiency is comparatively small even when what must be regarded as a danger point in mental exertion is passed. Most of the tests for fatigue hitherto suggested, more especially tests which measure efficiency by the output of work, however reliable they may be as indicators of real, and possibly dangerous fatigue, are not nearly delicate enough to indicate the degree of fatigue with which we have usually to deal, at any rate in the schoolroom. It is just here that the crucial question arises as regards the practical usefulness of any proposed test for fatigue, and it is in this connection that the results Ash has obtained with his test are most interesting.

What, then, is the nature of this "reversible perspective" test employed by Ash? It is well known that outline drawings of solids, which do not show perspective of any kind, are capable of being perceived in two ways, the mind, as it were, imposing upon them two different perspectives. Shroeder's "stair figure," Scripture's "blocks," are two familiar examples of such figures. The cube shown in fig. 1 is another and simpler example. The cube can be seen, either with the red (dotted in our figure) end, or with the black end, towards the observer. It is impossible for an observer, who has seen the two aspects, to maintain either for any considerable length of time. In a few seconds the figure invariably "reverses" in spite of the observer's will to prevent "reversal." All that the observer can do is to give a preference to one aspect, so that it will tend to endure longer than the other. But, although the observer cannot prevent spontaneous reversal, he can control the rate of reversal when he tries, not to prevent, but to produce reversal. This is the basis of Ash's test. He maintains that the rate of reversal—that is, voluntary reversal—is reduced as a result of any mental exertion. In other words, fatigue will be indicated by reduction of the rate of voluntary reversal.

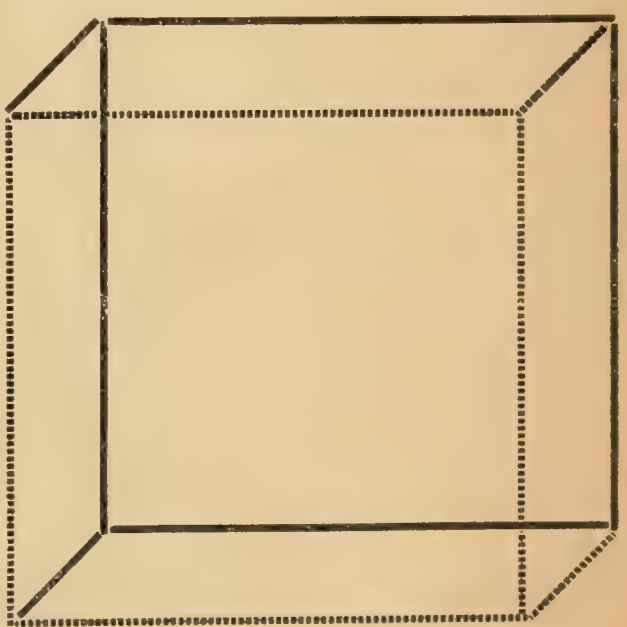

Fig. 1.

One very interesting theoretical ques-

tion is raised by the contentions which Ash brings forward. Upon what does the reversal of perspective depend? Some psychologists, including a psychologist of the reputation of Wundt, have maintained that reversal depends upon eye movements. That is certainly the first impression we get. Such a view could no doubt be experimentally tested, but we do not know that this has been done. Ash holds that the reversal does not depend upon eye movements, an opinion which has been generally accepted in more recent times. According to Ash, we impose upon the sensory data a mental image, as a subjective factor, the result being perception of the figure in accordance with the image. This is, after all, a more or less theoretical question, and its solution one way or the other would not affect the practical value of the test in the slightest degree. The practical value will necessarily depend upon the accuracy and reliability of the results we obtain from its use. Nevertheless, assuming that we do get accurate and reliable results, these can be more easily explained on the view that the reversal depends upon psychical factors, or, more particularly, as Ash contends, upon the degree of mental control, than they could on the view that the reversal depends upon physical factors like eye movements.

In the course of his experiments with "reversible perspective" figures Ash found—and our experience confirms his conclusions—that the reversal of complex figures like Scripture's "blocks" could be controlled less easily than the reversal of simple figures like the cube and the pyramid. Most of our experiments have been carried out with the cube. To begin with, we employed Ash's fig. 10, that is, a cube as in our fig. 1, but with blue for our red, and red for our black, and with the lines AAAA double the length of these lines in fig. 1. We have, however, found that red and green are better colours to use, that the red should take the place of Ash's blue, and that the lengths of the sides should be rather as shown in fig. 1. Ash's blue tends to be too persistent, and regularity of reversal becomes almost unattainable under such conditions.

Our experiments with Ash's test were intended first of all to verify his results, and secondly to extend his investigation. He found that an hour's work at simple mental addition was sufficient to produce a marked increase in the time required for reversal, that this result was obtained with great regularity, and that the increase in reversal time was the greater the longer the period of mental work. That is to say, he found that the reversal time of any individual subject could be taken, not only as indicating the presence of fatigue or its absence, but as, in a sense, measuring the degree of the fatigue. Our first series of experiments was intended to verify these results. It is evident that, if Ash's claims are substantiated, we have in his test by far the most delicate and reliable test of fatigue hitherto available.

We adhered to the type of mental work performed by Ash's subjects, that is, the mental addition of nine, eight, seven, and six, in succession, to numbers of two digits, called out by the experimenter every thirty seconds. In our first series of experiments such mental additions were carried on for half an hour, a record of the reversal time being taken before and after the work. In subsequent experiments of this kind the work was carried on for three-quarters of an hour, and in one case for an hour, and records of reversal time were taken at the end of each quarter. The subjects in all cases were training college or university students, some of them graduates, and all had a period of practice, of varying length in the individual cases, before beginning the experiment. The record was taken on a smoked drum, the subject recording reversals on the drum by means of a Morse tapping key connected up with a marker magnet. Another marker magnet gave a time record in seconds. The period of the record did not usually extend over more than thirty seconds. The results we obtained are shown in Table I. (This part of our investigation was mainly carried

out by, or under the superintendence of, Miss G. E. Bairstow, M.A., Demonstrator in the Laboratory.) These results are notable in two ways. In the first place, they support Ash's claim that the test can be relied upon to indicate the first effects of mental exertion, even before we could say that there was any real fatigue present. In the second place, they seem to indicate that the test is even more delicate than Ash claims, since in most cases they show a difference in rate of reversal after only fifteen minutes of mental work.

TABLE 1.

A.—Half-hour's work.

Subject.	Before work.	At end of work.
E.J.C.	1.06	1.43
J.T.	1	1.06
J.L.	.89	1
E.H.L.	.92	1.6
E.H.L.	.6	1.06
D.J.	2.22	3.12
J.H.	.88	1.15
M.B.	.61	1.2
M.T.	1.25	2.5
M.G.	1	2.5
I.E.C.	.77	.83

B.—Work extending for three-quarters of an hour with records every quarter.

Subject.	Before.	First Quarter.	Second Quarter.	Third Quarter.
E.J.C.	.7	.87	1.05	1.13
E.J.C.	.71	.67	.92	1
J.T.	1	1.2	1.4	1.5
J.L.	.63	.73	.82	.83
M.McG.	.83	.9	1	1.2

C.—One hour's work with records every quarter.

Subject.	Before.	First Quarter,	Second Quarter.	Third Quarter.	Fourth Quarter.
J.T.	.9	.9	1.4	1.5	1.9

In all cases the numbers indicate the mean time in seconds for one reversal.

This table does not seem to require further explanation. As we have said, it entirely confirms Ash's conclusions, and further shows that the test is a very delicate one. It will be observed that there are considerable individual differences in rate of reversal. It will also be observed that, even for the same subject, the rate of reversal is not constant. Some of the subjects gave several sittings, and, although they were all practised in the test to begin with, before any record was taken at all, yet they distinctly showed improvement at each successive sitting. This fact partly accounts for the variation in their initial rate of reversal, but, even apart from this, it is to be expected that initial rates will vary, and perhaps considerably, with the state of the subject at the time.

(*To be continued.*)

The Conflicts in the Unconscious of the Child. I.

By DR. EDER and MRS. EDER.

In the physical and intellectual spheres we have recognised, tardily it is true, and still too often only in theory, how great a distance the child must traverse—no less than from primitive man to the climax of our present civilisation—in the first few years of life. We have admitted the incalculable importance of slow-going, lest we injure irremediably the delicate body and mind; and we have agreed not to demand adult precision and control from the awkward, experimental, developing, child-body or mind. But in the emotional and ethical aspects the adult criterion still reigns. The babe has no easy path to grow into the civilisation of its time; it brings indeed much with it from more primitive times, but with the potentiality innate not only of reaching the current standard of civilisation, but of pushing it on a stage further. The child is thus not born at the zenith of its own civilisation: rather it belongs to "the lower culture," the twilight of myth and fable.

From this babe, thus always in a condition of unstable equilibrium, and therefore exquisitely sensitive to injury, like all embryonic tissue, we demand a rigid standard of behaviour and feeling applicable enough to the relatively stable adult. There is admittedly something amiss with an adult pre-occupied with its own diges-

tive or excretory processes, but this judgment is not to be brought against a little child between four and five, who loved to perform her natural function in the garden, speaking of it as "a precious little heap." She was living in an earlier age of civilisation, not unsuitable to her own development. As every unbowdlerised fairy-tale would show, she attributed potency and magic influence to this wonderful thing she had apparently created out of her own body.

The adult standard conveyed even in the gentlest form, as "That's not very nice—only the doggy does it out of doors," in no way serves to allay the child's interest and gratification. Such admonition will but dam up the stream of emotion and imagination, and thus begin a process of psychical disintegration.

We shall later on indicate how this and similar primitive evaluations are to be dealt with in such a way as to interfere as little as possible with the child's arriving at its finest adult development.

Again, we rightly censure the narcissistic egoism of an adult, but so much tenderness is necessarily lavished on the child in those first months and years, so much unavoidable attention, that he is prone to dawdle in this warm and snug valley rather than make the next step forward and travel the upland road. The close and prolonged intimacy of the attachment to the mother, his fastness within the family circle, present a difficult adaptation, yet one imposed by the necessity man is under of growth into sympathy and understanding. The early experiences contribute to produce within his breast the illusion of his own supreme importance, his all-powerfulness, his delightfulness.

"There had been a time when two people had thought Mr. Polly the most wonderful and adorable thing in the world, had kissed his toenails and marvelled at the exquisite softness and delicacy of his hair, had called to one another to remark the peculiar distinction with which he bubbled, had disputed whether the sound he had made was just 'Da, da,' or truly and intentionally 'Dadda,' had washed him in the utmost detail, and wrapped him up in in soft, warm blankets, and smothered him with kisses. A regal time that was, and four and thirty years ago; and a merciful forgetfulness barred Mr. Polly from ever bringing its careless luxury, its autocratic demands and instant obediences into contrast with his present condition of life. These two people had worshipped him from the crown of his head to the soles of his exquisite feet." ("Mr. Polly," by H. G. Wells.)

It is this self-centred creature, urged by an inner and an outer compulsion, that must, as least by school-age, grow into a large measure of self-dependence, self-control; must relinquish his right to exclusive mother-care, relinquish absorption in his own charming body; must learn to check his phantasies by realities, and learn to plant himself as a separate, new individual.

The child, the ordinary, normal child, so apt for civilisation, is anxious to conform to the external demand. Thus there grows up very early a differentiation between what he will talk of, play at with his fellows, and what he will produce for his parents, nurses, teachers. As to what attitude should be adopted, we at present know too little to permit the laying down of definite rules, but the great danger seems to us to lie in going too quickly, in imposing an external compulsion that is too far removed from the standard of civilisation which the child has reached within himself.

Even in normal children there can very early be seen signs of repression (that process by which desires unwelcome to consciousness, either from social reasons or from immaturity, have either never been permitted to emerge from, or are thrust back into, the unconscious), that is, if an attempt at sublimation (by this term is understood man's capacity for changing primitive, egocentric desires into cognate desires subserving cultural ends), which has not succeeded, when the real desire, corresponding to the stage of the child's own growth, is thrust below the level of consciousness, but remains dynamic and

succeeds in getting some fraction of its fulfilment in the symptoms known to every parent and educator. It is not from sheer "contrariness" or "nastiness" that children develop "bad habits," that they bite nails, pick noses, fidget, stammer, or later are too shy or too boisterously self-assertive, or develop this or that morbid fear. Such symptoms may be the replacement of normal curiosities and interests which have been denied their satisfaction, or may be due to a too early checking of a preoccupation with "messy" things, *e.g.*, playing with water, making "mud-pies," using hands instead of tools, etc. That is, the child has been forced into a sublimation for which he is not yet ready. The particular symptom may disappear as he finds other satisfactions, but the original thwarted desire persists, is dynamic, and may at any critical moment become the cause of a failure in adaptation.

The investigation of the unconscious, especially the child's unconscious, is a hard matter, involving much technical skill. The unconscious has its own laws, does not make use of logical, rational modes of thought, and deals largely in symbols and analogies and superficial and partial identifications. It is therefore useless to take the material of play, day-phantasies, dreams, at their face value. The mechanisms of the unconscious must first be studied; we must, for example, painstakingly find out what desires and fears are represented by the symbol of a horse to the particular child with whom we are dealing. We are not to jump to conclusions or to think that we shall read the child's riddle until we have applied ourselves to a mastery of the technique.

The childish mind moves and works as did the mind of primitive man, and the child spontaneously lives again the fairy-tales of its race, using the symbolisms of those tales: using "king" and "queen" for father and mother when these are loved; using "step-mother" for the mother when disliked and wanted away; "wicked giant" for the father when his authority seems oppressive; and using the universal old story of the mother eating a carrot, orange or what not when a baby is desired, to explain to itself the mystery of birth.

In its games the child is equally symbolic. As we have said, he does not play with water or make mud-pies because original sin makes him long to be messy; on the contrary, he is performing an operation of extreme importance for future development. He is taking the first step in the great process of sublimation, in transferring to the nearest portion of the external world his first delight in the discovery of his own body and his desire to use his bodily excretions—the constructive material nearest at hand—to fulfil the fundamental human instinct of creation. Clearly we have to understand the language before we can translate the meaning. The distinction made by Freud between the latent and the manifest content of the dream is not yet appreciated by many critics, but this distinction lies at the basis of the whole of the understanding of dreams. The dream as related by the dreamer is the manifest content; the significance of the dream is obtained by "free association" to this content. We then obtain the latent content, the real meaning.

With neither adults nor children does the method of direct questioning avail. With little children formal analysis is generally impossible. You must pay close attention to the child's prattle, carefully watch his games and his behaviour, and be always on the alert to pick out the clues to the meaning of a dream or symptom. Now as to the main conflicts (always reflected in dreams), these would seem chiefly to centre round:

(*a*) His interest and joy in his own body and its functions;

(*b*) His relation of love and jealousy to his mother and father and their surrogates;

(*c*) A similar relationship to the other children of the household;

(*d*) His eager interest in the problems of birth and sex, such as the idea that there are two sexes, the relationship between father and mother; and

(*e*) The feeling of his own littleness and feebleness as well as of his own wonderful power.

There are these interests and feelings on the one hand; on the other we find :—

(*a*) The inner growth of the child, always reaching out to a new, a more civilised adaptation, a psychic creation, which he will express symbolically by spontaneous creative acts—prompted or suggested imitative acts being no true substitute.

Here is a source of conflict within the mind of the child itself, one conditioned by the very necessities of growth.

"Our little lives are kept in equipoise
By opposite attractions and desires:
The struggle of the instinct that enjoys
With the more noble instinct that aspires."

(*b*) The pressure of the adult, anxious to hurry the child on to the adult point of view, consciously no doubt from the noblest of motives, unconsciously from nothing so respectable.

Within the limits of this article we can only briefly illustrate these various conflicts. The importance that the infant attributes to his own body in the direction of sensual and emotional satisfaction is scarcely a "Freudian invention." Every nurse, every mother who personally attends her child knows it perfectly, always has known it, and in civilisation, almost from the day of birth, has to set herself to combat it in the interests of civilisation, since the child's life must become social, not egocentive. The "natural" child, for instance, is interested in his urination and defecation. Why indeed should he not be? It has been necessary for the adult to sublimate these crude physical interests in favour of higher cultural ones, but for the little child all the world is interesting. And why should it be supposed exception will be made for these very curious and interesting phenomena which, in addition, he finds are accompanied by vivid bodily sensations, sometimes pleasant, sometimes very much the reverse? There are some quite normal people who can remember these interests, many neurotics for whom they have persisted. But the child generally comes to recognise as "dirty" what his elders so denominate and successfully sublimates these interests.

In this connection it is significant to observe how social convention affects the sublimation or repression; while a child of the better classes would never be guilty, except in secrecy, of such a "sin," children from a low social stratum can be seen publicly playing with their water, and in groups, thus making it clear this is as yet no "secret sin" to be indulged in furtively. Similarly, various other sensitive regions of the body—skin, mouth, nose, ears, etc.—all those which Freud has termed "erogenous zones," because the pleasurable sensations there experienced will later on all be collected up and transmuted, in part into the adult sex-pleasure, in part into all the cultural life-activities, all these are objects of high interest, of great valuation, and playing with one or other of them the usual procedure (as again all who have first-hand knowledge of very little children will admit), until civilisation comes in with "That's rude," "One mustn't touch that," and the like.

The interest, the estimation, will find expression, in night-dream or waking phantasy, with every varying degree of plainness or symbolic disguise according to the degree in which education and environment have differentiated into things forbidden and things allowed: this will vary from social stratum to stratum and from household to household. We have known a child as old as six, from a cultivated home where little repression was deemed wise, serenely conclude an outdoor game of "trains," in which her mother and two men and three women friends had to join, with, "And at the end of the last carriage is the w.c.," and proceed unembarrassed to perform her functions publicly; whereas a small boy only three and a half years, in whose case civilisation had stepped in more forcibly, considered it a matter of proper behaviour to convey his need to retire only by a discreet nod. The little girl, it may be said in

passing, found no difficulty in conforming in these matters to the usual standard of her social class as soon as she went to school. The general attitude which demanded such an adult standard from the three-and-a-half-year-old did not seem to have the happiest results.

The childish estimation of excreta, an instance of which has been already given, is akin to the mythological view. Innumerable are the fairy tales in which the fairy gold becomes dung on—a step sublimated—dead leaves.

(To be continued.)

Notes on Speech Development. I.

By Margaret Drummond, M.A.

The subject of this study is a little girl, Margaret, born 2nd June, 1913. She was a strong, healthy baby, weighing 7lbs. 11ozs. at birth. She could raise her head from the first day, and her cry, which was loud, occupied a large proportion of her waking hours during the first few weeks. As her intelligence developed, the crying became less, and before she was eighteen months it was usually quite easy to divert her attention from her troubles.

Judged by the results of other observers she was somewhat slow in acquiring speech. But she is one of those contemplative children who like to consider an activity in all its aspects before attempting it themselves.

At twelve months she used no words. She would babble freely and with evident enjoyment for perhaps half an hour at a time; she would also make sounds expressive of desire or simply to call attention to herself.

At fifteen months she would watch one's lips very carefully if asked to make a special sound, but would rarely try herself, and when she did her attempts were remarkably unsuccessful. From the expression frequently seen on her face at this time it was difficult to believe that she did not feel something of the wonder and mystery of speech, and realise to some extent the solemnity of the step she was about to take.

Her understanding was very good. She would obey many simple commands and often appeared to grasp the meaning of quite complicated sentences. Thus one day (14½ months) she was clinging to a book that I wished to have and refused to give it up. I asked if she would give me the book if I gave her a biscuit; she promptly handed it over, though, needless to say, the biscuit had not been shown.

She was gradually beginning to use a few more significant sounds to indicate her increasing wants: thus a deep guttural "chwa-wa" combined with a beseeching expression on the face, and hands held up meant, "Please take me on your knee and show me the bow-wow book." If the hands were turned towards the chimney piece the same sound meant, "Please give me the bronze dog that stands up there."

At this period (August, 1914) all her spare time was given to the study of pictures. She would sit quietly on one's knee while page after page was turned over and the different things pointed out and named. Occasionally she would turn round and look in one's face with an expression that seemed to say unutterable things, and she would rarely suffer herself to be put down without vigorous protest. Yet it was hard to get positive indication of how much she understood of what she was looking at. She could very seldom be induced to point to any particular named object herself, but if the things were not pointed out to her she would take my hand and place it on the picture, thus indicating her wish to have it analysed.

She was learning to walk at this time, and that may have delayed the development of speech. When exactly sixteen months she quite suddenly took a long walk through the rooms without any supporting hand. This sudden realisation that she can do a thing seems rather characteristic of her mode of growth.

She still practised simple sounds frequently. On the 23rd August she evolved

"b-r-m," which she kept repeating with great gusto. An "r" had not been heard before.

In the whole course of learning to speak there was very little evidence of transference of a significant sound from one element of a massive experience to another. The following may possibly be an instance, but it is the only one. The child had learned to say "Dada" in response to the question, "Who are the letters for?" On one occasion (sixteen months), on passing a pillar box in the street, she exclaimed, "Dada." There is no evidence that the term was ever used by her to denote her father; it was simply a sound associated vaguely with the postman and the bringing of letters.

In October she might say "bow-wow" when shown the picture of any animal; any bird would be greeted with "shoo"; "mè" was used as a request for more to eat; "tick-ta" denoted clocks and watches, and might be employed either as a noun or as an expression of a desire to be shown a watch or clock. There was some uncertainty as to whether she used any special sound at this time to denote her mother or father or nurse.

In November she added "baby" and "pee" (peep) to her significant sounds.

In January, 1915, "Baby," meaning herself, and "No," were her only proper words, though she continued to have ways of asking for things which involved to some extent the use of special sounds. A little later she made use of a fairly elaborate sign language. One day at her home in Manchester I asked her if she would come to Edinburgh with me. At once she patted her head to indicate she would go and put on her hat. She next patted my head and body as much as to say, "Go and get ready," and then she went and took her mother's hand and pulled her to show that she must come too.

The sign language appeared to be altogether of her own devising; gestures were little used in talking to her.

In March she added several words to her vocabulary: "'ere" (there), "cocoa," "tea," "caky," "appoo" (apple), "bird," "tō" (toast). These words were used as name words or wish words, and were applied with great exactitude. When first seen an orange was hailed as "appoo," and coffee was several times called "tea," but extensions such as these were unusual.

One or two attempts had already been made to teach her the colours red and blue, with their names. From the time she was first able to get about she showed a great love of going to the book shelves, and she appeared to select red books by preference. In the beginning of April she was using the term "boo" freely but quite incorrectly. Thus one day she brought me a piece of blue stuff saying, "boo," but soon after applied the name to her white dress, and three days later she brought me a yellow ruler saying, "boo." Not till the middle of May (twenty-fourth month) did she seem really to know the two colours; even then she could not say "red," but would point it out correctly when asked. I should say that no systematic endeavour was made to hurry her progress, and days might pass in which the colours were not referred to.

Her language included three words of her own: "oo" (pencil), origin not known; "memy" (flower), origin smell; and "mè," which expressed a wish for more to eat or drink.

Like all babies little Margaret used a good many duplicated words. For most of these I think the adults about her were responsible, but "bubu" (book) was probably her own.

By the time she was two the only phrases she used were "wee baby," "dood baby," "'appy baby," and "vay, vay tata." She was interested in letter forms at this time, and could name about ten of them: "O" and "S" were the oldest friends, and had been discriminated when she was about fifteen months.

In the twenty-sixth month she was forming little sentences descriptive of what was going on; *e.g.*, "Onkel lee" (uncle is reading), "Faver pu baby lay" (father is pulling baby's hair). "A" was worked hard as a preposition. It usually

meant " to " or " for." Thus she would say, " Dō a mam-ma." One day I gave her something to hang up on a peg beyond her reach. She tried, then remarked, " Too hot a baby," and immediately corrected this into, " Too high a baby." She was slowly increasing her stock of words, but pronunciation was very imperfect, *e.g.*, " poop " (soup), " ow dō loo " (outdoor shoes), " neen " (clean).

For the most part Baby's talk still belonged to the present. She was beginning, however, to use it to give information. Thus in the end of July she told her mother, " Baby fa' pa," referring to a fall on the path which she had had an hour or two earlier.

At this stage her tongue went almost without cessation; she would repeat one thing over and over, but neither now nor later did she practise words without meaning. At breakfast time she would take her stand by her chair and repeat " Baby up " with the persistency and monotony of a ticking clock till some one attended to her, when literally without a pause it would be, " Baby bè, Baby bè, Baby bè " (bread), till some one supplied this also, and for a few minutes there was peace. Another device by which she secured a good deal of practice was to repeat any observation she made to each member of the family individually. These habits of course evoked a certain amount of criticism, and in face of the gentle social pressure thus exercised they did not persist long.

Her attitude to number was the subject of some observations. In her twenty-third month she constantly brought two things, and held them out saying "two." In her twenty-sixth month she would count up to three when pulling flowers. On the 3rd August she was holding three pins for me. Spontaneously she said " Two," but immediately corrected herself and said " Lee " (three). I took one away, whereupon she said " Two." On my taking away another she said, " Non " (one). On the whole she seemed to make the abstraction necessary for number more easily than that required for colour.

The child's thinking powers now began to require complex sentences for their expression. On the 17th August she remarked, " Baby have tat bubu a *wee* baby " (Baby had that book when she was a wee baby). A few days later she wished to try to tie a ribbon on my blouse. I said it was too high for her. She immediately patted a chair, and said, " Ahtie teet lay, Baby tie " (If Auntie will sit there, then Baby can tie). Her reasoning power was evidently developing. One day she was told the street was too wet for her to walk; she resigned herself to fate and was wheeled along. After a little she spied a dry piece of pavement and said, " Tat dy; Baby walk lay."

In looking at pictures she now enjoyed making comparisons; she had a set of animal pictures which were arranged in pairs; she would go over these pointing and commenting thus, " Tat tanin (standing) up, tat sitting down; tat nong (long) tai, tat shor tai," and so on.

She usually spoke of herself as Baby, but was beginning to use the pronoun " I." When we said, on putting her into her perambulator, " In you go," she would respond, " In I go." Her use of the pronoun you was generally correct. One evening, however, when some one said to her, " Call uncle to come to you," she shouted out, " Onkel, mam (come) a you."

By September (twenty-eighth month) it was not easy to remember all the words she used, but many of them were much mutilated, only the first syllable being given in many cases. She was much more willing to try to imitate a sound, and was more successful. Careful watching of the lips was still noted.

In October her attention was called to the peculiarities of the third personal pronoun. She at this time uniformly said " her " in place of " his." She was told one day that father was " he." Conversations such as this took place. " Faver he? " " Yes." " Nana he? " " No, Nana she." " Lalla he? " " No, Lalla she." " Mamma he? " " No, Mamma she," and so on.

During the winter months she talked continuously, and her vocabulary now began to grow with great rapidity. Her sentences were sometimes fairly long, and especially when she was a little excited the words would come in a very unusual order. Her pronunciation improved so much that as a rule she could be understood by anyone without the aid of an interpreter.

In December an attempt was made to obtain a full vocabulary, with results that will be referred to later.

In January, 1916, came a notable confirmation of her interest in lip movements. She had brought me a doll and asked me to sing to it. I began singing la la, and as I did so I noticed her watching my face with her funny little enquiring expression. Presently she remarked, "You sing la la with your tongue." "Of course," I said, "how else would you do it?" She had been playing with some doll's house furniture, and among the articles was a little mirror. This she now picked up, and she began to sing la la herself, closely observing her actions in the mirror.

In referring to herself "Baby" and "I" were both used freely. A favourite phrase was "Let *I* do it." She was generally very quick to accept a correction, but this form persisted so long that it seemed as if it was felt to express her meaning better than the more conventional "me."

In spring she began to investigate time words. "Yesterday" was used readily and correctly in March (thirty-fourth month), probably sooner. Such words as "to-morrow" and "by and bye" were the subject of enquiries, of which the following may be given as representative: "Are we going home now?" "No, by and bye." An interval, during which her relatives have forgotten what has passed. "Is it by and bye?" "No, it's now." "Are we going home?" "Yes." "Thought we were going home by and bye." This last was in an expostulating but resigned tone of voice. No answer seemed expected.

(To be continued.)

Suggestions for Study and Practice.

The Value of Sectional Class-teaching. "Selecting the best readers in the class, I called them Group I., let them have books, and told them they might read to themselves, and I would hear afterwards how they had managed. This was allowed as an honour, and so long as they worked honestly they would at times be left to work alone, helping one another with any difficult word that occurred. The children ...worked, not mutely but with a busy noise, and anyone could see that all were working with a will.

"My whole attention could now be given to the second group, and in a short time this section was able to be divided into two parts, which I called Group II. and Group III. Group II. was treated in a similar manner to Group I., and having set these apart it was now possible to give individual attention to the slow ones of the class...Having the class arranged thus in three sections, I found that with careful handling every child in the class was working, and the interest in their reading increased."—*H. Fitt*, on "An Experiment in Sectional Teaching," *Child Life*, October, 1915.

The Teaching of Defectives. "Remember that work and exercises demand much energy, and but little skill are called for in the lower grade cases. Never let anything be learned off 'parrot-fashion' unless it is also understood...The old teacher's maxim for all bad habits requiring correction has a very special application [to defectives]: 'Don't say "Don't," say "Do".' In other words, replace bad habits by the corresponding good or proper ones...as with infants when one wants to get an article from them—give them another object to take its place."—*Dr. Meredith Young*, in his book "The Mentally Defective Child."

What we may learn from the Feeble-minded. "I sometimes think, in his [the feeble-minded] relationship to normal children, he may be compared with the salts or acids used by the chemist in determin-

ing the relationship of the material things of the world. His mind functions slowly. He may have a mentality of five years and keep that mentality through twenty years. So the skilful student may learn many of the things that a normal five-year-old does, why he does it, and how he does it, by studying the feeble-minded. After all, he develops along much the same lines as normal children do, but more slowly, and if we will study and observe him we can learn many lessons of great value in teaching normals."—*The Training School Bulletin*, February, 1916.

Child-Study Association and the Constituent Societies.

The Birmingham Society.—The following dates are proposed for the Child-Study Lectures this session, at 6 p.m., in the King Edward's High School, New Street:—October 10th, November 7th, December 5th, February 6th, March 6th, April —. The lecturers will include Lord Sandwich, Dr. Airy, and Miss L. E. Bowler. It is hoped that one evening will be devoted to a discussion on "Versification in Schools"; and an afternoon to visiting Conway Road Infants' School, to see the dancing and rhythmic exercises of the children.

The Hartlepools and District Society.—The list of lectures, up to Christmas, is as follows:—

Sept. 8th.—*The Teaching of Arithmetic,* by Professor T. P. Nunn, M.A., D.Sc.

Oct. 20th.—*Spelling Reform,* by Professor W. Rippman.

Nov. 16th.—Dr. Saleeby.

Dec. 1st.—*The Future of the English Boy,* by J. G. Legge, Esq.

The London Society.—The following lectures have been arranged:—

Thursday, Oct. 12th.—*The French Child at School,* by Cloudesley Brereton, M.A. Inspector (Education), L.C.C.

Oct. .—*The Centre of Gravity in Educational Reform,* by Dr. M. E. Sadler, C.B., Vice-Chancellor, University of Leeds. The date will be announced in the L.C.C. Gazette.

Thursday, Nov. 16th.—*Discussion on Handwriting.* The chair will be taken by Dr. C. W. Kimmins, who will give an account of the further special tests in manuscript writing. Papers will be read by Walter Scott, H.M.I., on *The Artistic Aspect of Manuscript Writing;* by J. W. Samuel, Headmaster of Millwall Central School, on *Manuscript Writing in a Central School;* and by A. Sinclair, Headmaster of Trafalgar Square School, on *Manuscript Writing* in a Boys' Elementary School. The papers will be illustrated by lantern slides.

Obituary.—It is with deep regret that we have to record the death of Sir Richard Martin, who was elected Treasurer of The Childhood Society in 1896, and filled the like office on the formation of the Child-Study Society, London, of which he also became President in 1912. Sir Richard was one of the kindest of men, and although a banker and a man with many interests in the City, he was always ready to help in all philanthropic and educational works. He was one of the earliest supporters and Hon. Secretary of the Metropolitan Hospital Sunday Fund, Treasurer of St. Mark's Hospital, Royal National Orthopœdic Hospital, Association for Promoting the Welfare of the Feeble-minded, and the Royal Statistical Society.

Our sympathy and a deep gratitude are offered to the relatives of those members who have given their lives in the service of their King and Country. So far we have heard of two members of the London Society:—Captain Alexander Graham, M.D., R.A.M.C., late Medical Inspector of Schools for West Ham, who died of wounds received in the Dardanelles; and S. M. Dikshit, B.A., LL.B., who was drowned in the sinking of the ss. *Persia.*

The Manchester Society.—Syllabus of lectures for 1916-17:—

Oct. 21st.—Meeting of Associated Educational Societies.

Nov. 17th.—Discussion on *Montessori Methods as applied to English Schools.* H. Ward, Esq., H.M.I. (Manchester).

Dec. 8th.—*Eurythmics.* Miss Elsey Findlay (Manchester).

Jan. 19th.—Discussion on *New Conditions of School Life as a result of the War.* Speakers: Miss C. Herford (The University, Manchester), I. Steer, Esq. (Southall Street Boys' School, Manchester), Miss Sweaney (Alfred Street School Infants' Department, Harpurbery).

Feb. .—*The Little Commonwealth.* Homer Lane, Esq.

March 16th.—*The Girl Guide Movement.* Miss Behrens (Commissioner, Manchester, Salford and District Association). Demonstration by Miss Ingram (County High School for Girls, Altrincham).

Notices and News.

L.C.C. Lectures.—There are eight courses of lectures on Pedagogy to be given during the winter, which are open to all engaged in teaching, and include:—"A Psychological Introduction to Child-Study," by Miss L. Brackenbury, M.A., and "Consciousness and its Manipulation in School Work," by Professor John Adams, M.A., B.Sc., LL.D. Many other courses valuable to teachers are also being given. Full information can be obtained from the Education Officer, L.C.C. Education Offices, Victoria Embankment, W.C.

Our Journal in India.—As a result of the interest aroused by the reading of CHILD-STUDY we have received a request from Howrah, Bengal, for information as to the establishing of a Constituent Society there.

Reviews.

Kinderstudie. Pp 103. J. P. Ploegswd, Zwolle, Holland. Price 5s. per vol. of 256 pp.

This is the first number of a periodical under the auspices of the Child Knowledge Society in Amsterdam. It is not to appear at fixed times, but as the society may judge necessary. Each number is to consist in part of a careful summary of the aims of the society and the history of the movement. The article in this number is a lucid outline of the rise and world-progress of child-study, with special reference to the differences peculiar to each country. There is a carefully defined statement of the scope of the magazine.

One article deals with the development of the power to draw, coupled with the ability to recognise familiar articles from outline drawing. The gradual evolution of a recognisable drawing from the first aimless scratches, through the period of scratches which have a meaning for the author only, is carefully brought out. The tendency of the older child to draw what it knows to be there, rather than what it sees, is dealt with. Both these parts are copiously illustrated. Then follows a diagrammatic comparison of the divisions of this early work by leading psychologists, and graphs, showing at what age the various parts of the body appear in children's drawings.

The part devoted to children's recognition of drawn objects is most fascinating. There is a series of objects partially drawn in outline, each drawing ceasing as soon as the child (under two) named it. With animals the head is apparently sufficient; but with everyday objects more detail is necessary and the names are sometimes fanciful. The second series is one in which the head of one animal is drawn with the body of another. Here the child invariably named the animal from the head. If, however, only the body were exposed, that was often correctly named. One child, living near a zoo, called a cat-dog a hyena.

The last paragraph deals with the resemblance between drawings made by children of five and six and adult savages and nature peoples, discussing the familiar statement "The childhood of the race is repeated in that of the individual."

A bibliography section has three parts :—(1) A carefully compiled list of references to other works dealing with magazine subjects. (2) A list of foreign child-study literature and where to apply for it in Holland. Our own magazine is to be found in the Netherlands School Museum at Amsterdam. (3) Reviews and book notices.

All who know Dutch will find much to stimulate thought in this periodical, and others less fortunate should find the illustrations helpful.

Children's Ways. By Professor JAMES SULLY, M.A., LL.D. Pp. viii., 193. Longmans, Green and Co. Price 2s. net.

This is a cheap edition of Dr. Sully's well-known abbreviation of "Studies of Childhood." All parents and young teachers who are beginning to study children will find this book as helpful as it is interesting and attractive.

Mentally Deficient Children, their Treatment and Training. By Dr. G. E. SHUTTLEWORTH and Dr. W. A. POTTS. Pp. xix., 284. H. K. Lewis and Co. Price 7s. 6d. net.

This is the fourth edition of this widely known book, in which "much has been re-arranged and re-written. Chapter vi., dealing with the mental troubles of youth, has been added." A French edition has been published, and a Japanese translation is proposed. There is no need to recommend further a work which has been so successful as this one.

The Mentally Defective Child. By Dr. MEREDITH YOUNG. Pp. ix., 140. H. K. Lewis and Co. Price 3s. 6d. net.

This book is based upon a course of lectures given as a Special Summer Course for Teachers at Birmingham, and is "specially written for laymen," *i.e.*, non-medical people. The topics treated are :—The examination of the child; types of mental deficiency; some conditions in mental deficiency, and distinctions between mentally defective children; the moral imbecile; the Binet-Simon tests; illustrative cases; education of the feeble-minded; various Acts of Parliament.

The author writes lucidly and interestingly, and gives very helpful guidance. It should prove an excellent book for giving a young teacher a clear bird's-eye view of the problem of educating defective children. Its great fault is that it is much too brief and summary, especially on the educational side.

Toy-making in School and Home. By R. K. and M. I. POLKINGHORNE. Pp. 299. George G. Harrap and Co. Price: Complete 7s. 6d. net, Part I. 4s. net, Part II. 4s. net.

This is an excellent reference book for teachers and parents who wish to know of models and how to make them. Numerous and attractive examples are given, with full details as to construction, and first-rate illustrations. The book is too well produced; it would have been equally useful in a much cheaper form as to paper, printing, etc.

PUBLICATIONS RECEIVED.—*Journal of Education; Educational Times; Child-Life; The Parents' Review; Secondary Education; School Hygiene; Educational Review* (U.S.A.); *Child-Life* (U.S.A.); *School and Society* (U.S.A.); *The Training School Bulletin* (U.S.A.); *School and Life* (Petrograd); *Knowledge and Character*, by WILLIAM ARCHER, pp. 28 (The Moral Education League); *Cutting-Out*, by BERTHA BANNER, pp. 30 (Longmans), 3d. net; *Control*, an address to Scoutmasters, etc., by E. A. HUMPHERY FENN, pp. 32 (W. Heffer and Sons, Cambridge), 6d. net.

Child-Study.

The Journal of the Child-Study Association.

Vol. IX.—Nos. 7 & 8. NOV. & DEC, 1916.

A New Test for Fatigue. IV.

By James Drever, M.A., B.SC., D.PHIL.

Our next experiments were carried out on the assumption that the test was a reliable one, with the object of tracing the effects of a normal working day at college or school on mental control, or on fatigue. The subjects were volunteers from among the second year non-university students, the members of the Training College Staff, and the members of the staff of the Demonstration School.

Typical results are shown by the graphs in figures 2, 3 and 4. As in the other experiments the subjects were given some preliminary practice until they could perform the reversals fairly rapidly, and were not showing any marked improvement with further practice. They then gave a record before beginning the day's work, and at each of the various intervals during the day, the time given to the record being, as previously, about thirty seconds. Records were taken both at the beginning and at the end of the lunch interval. The students were taken in two groups, one group on what might be termed a hard day, the other group on an easy day.

Graphs of the first group are shown in fig. 2, and of the second in fig. 3. It should perhaps be noted that A.M.B. was suffering from a severe headache in the afternoon, and the effect of this is well indicated.

Fig. 4 shows the graphs for two teachers in the Demonstration School. Both were former students, who had taken a course in the laboratory, and one of them had wrought in the laboratory for two years.

It is, of course, obvious that the mere fact of a student's being present at a lecture is no guarantee that the student in question was doing real strenuous mental work during the lecture hour. To make such an experiment complete we should require to have from each student a careful and detailed account of what was actually done during each hour. That we did not obtain, but we mean to attempt to do so in future experiments of this kind. In spite of this defect in the experiment, interesting results were got in many cases, as the graphs prove. An hour at gymnastics slowed the rate of reversal in every case. An hour at singing had generally the opposite effect. Of two successive periods at the same subject, the second generally caused a slowing of the rate. Although no fatigue that matters is involved in the course of an ordinary day's work at the Training College, most of the graphs show a distinct tendency to rise in the time of reversal during the afternoon. On the whole, however, we would not suggest that our results can be regarded as in any way final. They are merely sufficiently interesting to stimulate the desire to pursue the investigation farther.

The most striking advantage of the "reversible perspective" test for fatigue is probably the ease with which the test may be given. With the smoked drum, the tapping circuit, and the time circuit, all in readiness, the giving of the test requires about half a minute, and it is therefore eminently suitable for the kind of investigation we have just described. At the same time it must be remembered that a preliminary period of practice is absolutely necessary, and there are evidences of considerable practice gain, even after fairly extended practice. The most serious disadvantage under which the test labours is the lack of any objective control of the

records. Obviously, if the subject is aware of the kind of result expected, there will be a tendency for this awareness to act with the force of suggestion, and for the subject to give, quite unintentionally, the kind of result desired. It does not seem possible to overcome this disadvantage, unless by getting the subject to strive against this effect of suggestion, and relying on the subject's *bona-fides*.

Another apparent disadvantage of the test is the difficulty of applying it to children. There would, of course, be no difficulty with children of thirteen or fourteen years of age, but with younger children it is very doubtful whether reliable results could be obtained, at any rate by applying the test in the same way as with adults. With children of seven or eight it would seem impossible to apply the test satisfactorily in any way, but it is perhaps not impossible to apply the test to children from ten to twelve. With a view to deciding this question, and also to discover

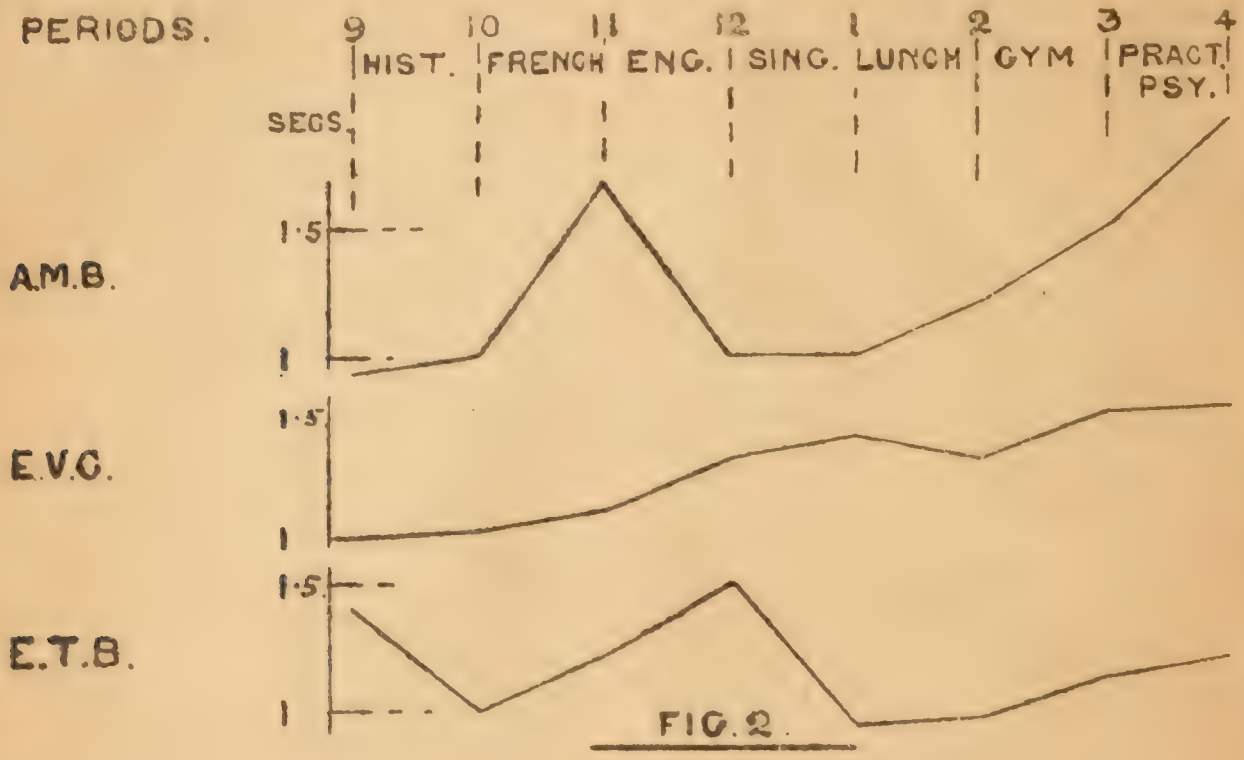

FIG. 2.

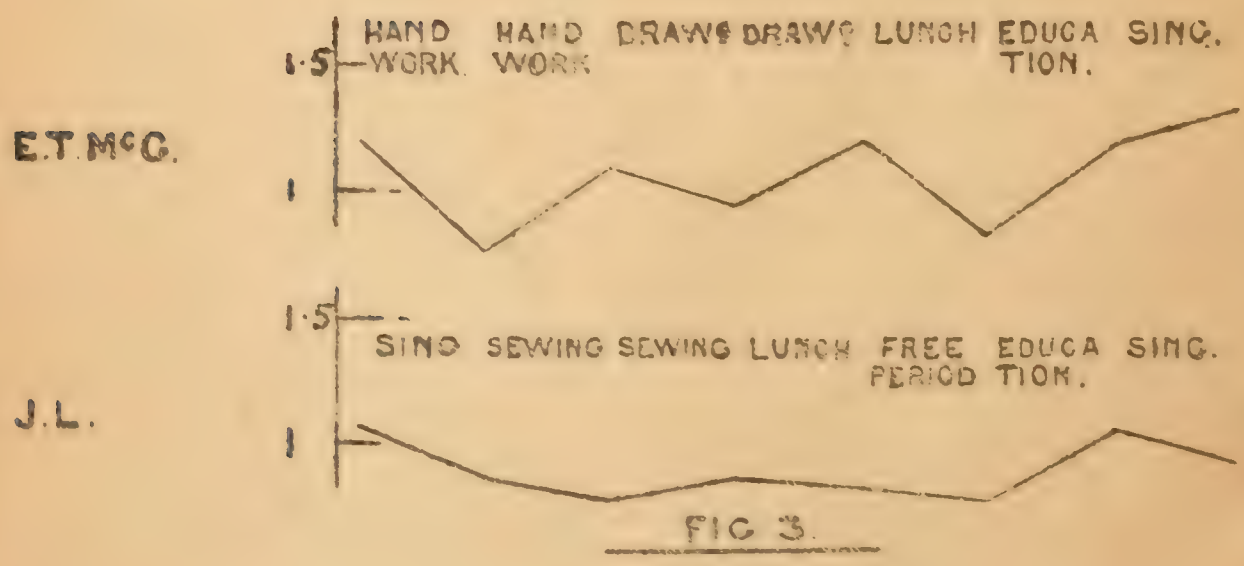

FIG. 3.

how far the test might be used as a group test, we obtained permission from the Headmaster of the Demonstration School to try the test with a class of children, aged about ten. Miss J. A. Inverarity, M.A., a former student in the laboratory, who had charge of such a class in the school, kindly consented to make the trial. For this purpose Ash's procedure had to be modified, but the experiment remained essentially the same.

Using the colours we had found most suitable, we first of all prepared a special figure which could be stuck up on the blackboard and easily seen by the whole class. Miss Inverarity then gave the class some lessons in perspective and the

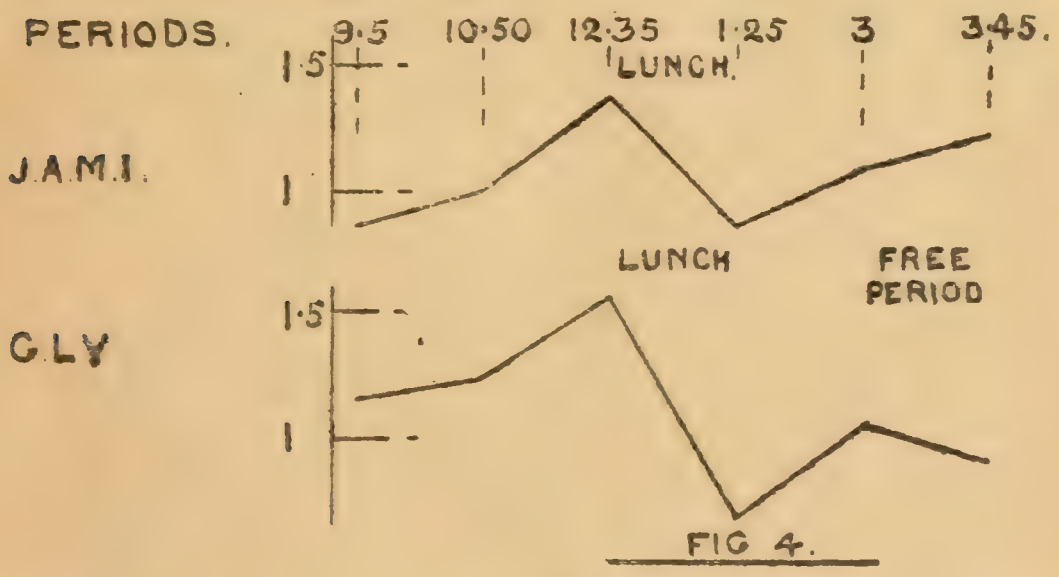

FIG 4.

representation of solids in drawing, and called the attention of the children to the two positions in which the cube could be seen, representing both positions separately on the blackboard. The children were next instructed to make a cross on a sheet of paper given them, when one end seemed to be the end of the cube next to them, and a cipher when the other. Lastly, they were told to try to make the figure change as rapidly as possible, recording the changes in this way.

After every means had been taken to make the children understand what was required, the preliminary practice began. This practice extended over ten days, with several short periods of practice each day. Finally, the experiment itself was taken. The children performed the reversals for thirty seconds before work began in the morning, at the end of each period, and at the end of each interval during the day, nine tests in all being given.

The following is the time-table of the test day :—9.5 a.m., test 1; 9.5-9.55, Bible; test 2; 9.55-10.50, reading and spelling; test 3; 10.50-11, interval; test 4; 11-12.30, arithmetic and geography; test 5; 12.30-1.30, dinner interval; test 6; 1.30-2.55, drawing and history; test 7; 2.55-3.5, interval; test 8; 3.5-3.35, grammar; test 9.

It will be noted that tests 5 and 7 are after long periods of work, and tests 4, 6 and 8 are after intervals, test 6 being after the long dinner interval. Table II. gives the results for the class, the boys and girls separately, with the exception of about half a dozen children, whose inclusion would not have affected the general result in any significant way, but who have been excluded because their papers showed clearly that they did not still understand what was wanted. Several of the others are doubtful, but have been included. The numbers give the reversals in thirty seconds in each case, being obtained by counting the crosses and ciphers made by the children. We have also given the median value for each child, and the semi-interquartile range as a measure of vari-

TABLE II. *Time taken for the Test (in seconds).*

Girls.	1.	2.	3.	4.	5.	6.	7.	8.	9.	*Med.*	*S.I.R.*
H.McD.	10	16	17	16	18	19	15	20	18	17	1
M.S.	9	13	16	18	14	21	13	23	13	14	2.5
L.W.	—	8	10	9	9	11	8	9	9	9	0
R.F.	8	6	8	8	10	13	8	10	9	8	1
N.L.	4	6	11	10	9	14	12	12	9	10	1.5
M.H.	6	7	10	8	9	12	9	12	12	9	2
J.A.B.	6	7	10	8	9	9	9	12	9	9	.5
A.S.	7	5	7	10	8	8	11	11	7	8	1.5
J.J.	8	14	14	12	8	17	12	15	7	12	3
G.R.	5	6	5	4	10	9	7	7	4	6	1
M.K.	7	11	12	16	9	16	7	9	7	9	2.5
A.H.	14	9	10	18	7	14	9	13	13	13	2.5
N.C.	11	15	22	18	13	19	14	21	14	15	2.5
S.L.	15	15	16	17	16	21	16	18	16	16	.5
E.D.H.	8	11	11	16	16	17	14	16	19	16	2.5
G.T.	9	9	12	11	9	11	—	15	12	11	1.5
I.O.	10	9	12	11	13	8	8	13	7	10	2
L.S.	8	11	13	12	11	13	10	18	15	12	1
E.W.	9	10	12	12	11	11	9	7	10	10	1
P.D.	8	7	9	7	6	7	5	5	4	7	1
A.McG.	7	14	13	9	13	14	8	17	14	13	2.5
R.B.	10	11	18	18	15	24	13	23	17	17	2.5
Mean	8.5	10	12.2	12.2	11	14	10.8	13.9	11.1		
Mean Reversal	3.5	3	2.5	2.5	2.7	2.1	2.8	2.2	2.7		
Boys.											
G.T.	19	22	16	24	14	20	18	13	24	19	3
P.G.	14	19	17	20	21	16	15	19	16	17	1.5
W.G.	9	14	14	22	18	13	13	17	14	14	2
J.E.G.	10	16	12	16	11	22	15	22	22	16	5
B.N.	8	12	16	14	14	14	10	19	22	14	2
A.V.	11	10	15	16	12	17	11	17	15	15	2.5
T.C.	13	12	15	16	15	14	10	15	18	15	1
T.A.	8	9	12	10	8	11	10	11	10	10	1
J.B.	12	13	15	16	11	20	12	19	11	13	2
R.S.	12	13	18	16	19	22	14	20	12	16	3
P.H.	12	15	16	15	14	18	14	19	18	15	2
A.B.	8	7	9	8	6	14	6	16	5	8	1.5
J.G.	5	6	9	7	9	12	7	9	5	7	1.5
D.M.	8	9	8	10	7	9	7	14	9	9	.5
W.C.	9	10	14	10	11	14	7	15	14	11	2
W.B.	16	—	12	12	10	9	8	14	11	11.5	1
S.S.	7	8	12	12	9	13	15	11	10	13	1.5
J.A.	10	15	12	10	9	—	11	12	13	11.5	1
F.P.	13	14	18	16	12	13	15	11	10	13	1.5
D.A.W.	12	10	12	12	14	18	14	18	16	14	2
B.S.	9	10	12	13	9	15	9	11	13	11	2
R.S.	12	9	15	14	9	12	10	15	13	12	2
A.D.	16	15	14	18	15	21	15	15	13	15	.5
Mean	11	12.2	13.6	14.2	12	15.3	11.2	15.3	13.6		
Mean Reversal	2.7	2.5	2.2	2.1	2.5	2	2.7	2	2.2		

ability. The use that can be made of these is not at present obvious, but they at least show the relation of the highest and lowest rates of reversal to the central rate, and the regularity or irregularity of the rates themselves. For the latter purpose the semi-interquartile range is more suitable than the mean variation owing to the small number—nine—of the records, but very little weight can be attached to it, owing to the fact that extreme variability is sometimes shown with a small interquartile range. In the last line in each division of the table we give the rates of reversal in the same way as in the other experiments, that is, in mean time taken for one reversal.

We consider that the main object of our experiment was attained. This was to show that Ash's test could be used as a group test with a class of children. Apart from this result, there are some other points worth noting. Without attaching too much importance to the results of a single investigation, we may nevertheless indicate some of the facts which these results bring out. In the first place, there seems to be a marked gain in efficiency during the first two hours of the school day. In the second place, though a long period of work diminishes efficiency, a short interval is generally sufficient to restore it. In the third place, decrease of efficiency appears to show itself early during the afternoon session. An interesting difference between boys and girls seems also to be indicated. The tendency towards a final spurt shows itself in the case of comparatively few of the girls—A.S., E.D.H., and E.W.—but in the case of considerably more of the boys—G.T., B.N., T.C., J.A., B.S.—and this is reflected in the two means. While the time for reversal increases during the last half hour of work from 2.2 to 2.7 secs., among the girls, the increase is only from 2 to 2.2 secs. for the boys.

On the whole, then, we should say that the "reversible perspective" test is one that is well deserving of further study. It appears to be as reliable as most fatigue tests. It is more delicate or sensitive than any we have hitherto used. It can be given easily and in a very short time, either as a group test or as an individual test. Further investigation will no doubt bring out many things in connection with the test, which are not at present obvious, but we believe such further investigation will be eminently fruitful. The two aspects of the test which we are in the meantime studying are the effects of practice and the individual variability in reversal time. But there are surely many readers of this journal in a position to apply the test further as a group test either with school-children or with adults.

Some Material for the Educational Study of Fairy-Tales.

By Miss Janet K. Gartshore, M.A.

The fairy-tale of modern days is a survival from prehistoric times and primitive societies. For those who would interpret it, it shadows forth the beliefs and the customs of men in a more or less uncivilised state. Thus it can readily be understood that there are objectionable elements in fairy-tales.

The physical impossibilities, the inconsistencies, the traits that shock the modern moral sense, all strike the educationist very forcibly on a critical examination. For these tales arise in times when man was ignorant of law in nature, and imagined a personal agent behind every natural phenomenon. They are often the creations of a society whose moral level was not that of modern times, and whose customs we could not tolerate.

Is it well, therefore, from either the intellectual or the moral standpoint, to provide children with such mental food? Such stories present a distorted world, governed by arbitrary wills, and full of suggestions of evil. Now the child finds it hard enough to distinguish between good and evil, true and false in the real world into which he is born, without being hindered by twisted conceptions from a world of the imagination. Should the edu-

cationist therefore banish the fairy-tale completely?

Most children are fond of fairy-tales, for there is a certain correspondence between the mind of the child and that of the savage; in other words, the development from childhood to maturity follows on broad lines the evolution from uncivilised to civilised man. Can this interest not be used by the educator to quicken the imagination and encourage creative powers by means of carefully selected, and, if need be, re-written fairy-tales? As for the lack of order in the fairy world, does the child discern order in the *real* world till he has come to a realisation of his self as a distinct personality? With the firmer grasp on reality will there go the putting away of childish things, and among them fairy-tales?

The following account of a few tales written by a schoolgirl of fourteen years may help to throw some light on this subject. She had a pronounced preference for fairy-tales till an age when most children have lost the taste for them, which may account for her having sufficient command over language to write a few.

Of the nine tales preserved, seven are fairy stories, the others having been suggested by "Treasure Island" and Ballantyne's "Coral Island." During the time of writing these nine the writer's interest in fairy-tales steadily waned, till it ceased. The next entries in the book are pieces of verse. From the age of sixteen she wrote neither prose nor verse.

The turning from the world of the fairy-tale to that of reality may be traced in the tales given here. The earliest in date is

The Wicked Woman.

Jan has a scolding wife, with whom he has no peace. He wishes her down a deep hole in the forest; the wish comes true, and Jan returns home tranquilly. But the underground giant, whose skylight she has fallen through, objects, and Jan has to take her back. Unfortunately, she is now far worse. Jan seeks the aid of the giant, who sends her ostensibly to "Hatterland," but in reality captures her to provide him a feast. Jan overhears his plans to eat him too, and prepares a poisoned sheep, which he presents to the giant. In the underground kitchen he finds his wife "boiling for the soup"! By means of oversalting the soup Jan contrives that the giant sets it aside to eat all the more of the sheep, and so is poisoned. Jan liberates the usual imprisoned princess, confiscates the treasure, and weds the young princess to a neighbouring prince.

The source is no definite fairy-tale, but many typical fairy-tale elements are present: the cannibalistic giant, the captive princess and an element of magic, all woven into an original story.

So far as the writer remembers, the story seemed to come into her mind of itself, and cost merely the trouble of writing down. She was at home in the fairy-tale world. A gentle, shy child in real life, she realised nothing of the sin and suffering portrayed, *e.g.*, in the treatment meted out to Jan's wife, and in his poisoning methods, for on reading the story later she was shocked to find she had imagined such things.

In the next story the impossibilities and crudities of "The Wicked Woman" have given way to a less fantastic and more moral conception.

Pat and the Mountain.

Pat lived with his widowed mother at the foot of a cloud-capped mountain. Great was his longing to climb it, and at length he gained his mother's consent and set off. After a long, stiff climb he reached the top, on which was a cairn. On attempting this he was beaten back by a shower of stones, but, nothing daunted, he climbed on, and found, to his astonishment, a tiny, old man at the top. His clothes were the colour of mist, and his hair like grey lichen. "He spoke, and his voice was like the sighing of the wind in the pines." This Grey Man had mistaken Pat for his old enemy the King of the Underworld, but now he recognised him as the boy who lived at the foot of the

mountain. Praising him, much to his embarrassment, for his steadiness and devotion, the Grey Man offered him whatever he might wish. He wished for a cottage in a glen on the mountain-side, there to live with his mother, but he was uncertain to whom he should pay the rent. The Grey Man, as landlord, requested a basket of cherries each year, and, by his fairy power, had the cottage ready before Pat descended the mountain-side.

The source is no more definite than the typical folk-tale of the little people of Scotland and Ireland, on which the tale, in its simplicity of narrative and *naïveté* of style is modelled. The idea of the mountain-scaling was suggested by the writer's own inordinate desire to get to the top of everything, and the fact of the rent being a basket of cherries was taken from an actual occurrence.

Though the supernatural element is still strong, the Grey Man is neither crude ogre nor typical fairy, but a personification of the spirit of the mountain-top, and, moreover, an entirely good force.

Here the writer is bringing observations from her real life into the fairy-world, and has definitely abandoned the low moral plane of her first tale. In none of the other stories is there anything objectionable from the moral point of view.

The only claim of the next story to be a fairy-tale is that in it animals talk and act intelligently.

How Tom and Tim Left the Forest.

Two boys, brought up by a gorilla in an equatorial forest, are moved by longing after their kind to go in search of men. They travel through the forest, helped over difficulties by the gorilla and a python. On the other side of a range of mountains they discover the tribe to which their parents belonged. There they settle down and eventually marry.

The idea that nature prompts the human being isolated from his fellows to return to a social state forms the unity of the story—a human idea, and the description of forest and mountain is so realistic as to make the supernatural element rather incongruous. The moral atmosphere shows that the ruling power is good, as nothing but kindness is shown the travellers by beast and man alike.

After this the writer's interest in fairy-tales wanes rapidly. "The Island," an adaptation of "The Coral Island," is quite possible, and lays claim to be probable. Of the next three fairy-tales one is a burlesque, another a love story, the third an allegory, the interest lying anywhere but in the fairy element. The writer remembers distinctly how they dragged on her hands, for she was no longer at home in the fairy-tale world.

The transition is clear from the preference for the fairy-tale with all its disregard for truth in the physical and spiritual worlds to the preference for stories which will conform to reality in both spheres.

Can we turn this study to account in helping us to decide with what precautions the fairy-tale may be given to children?

In the first place, the moral objection may be removed, for it is quite possible to have fairy-tales without anything morally objectionable. It lies with the parent and teacher to see that the child never gets a story that might harm him.

Then, if the fairy-tale is permitted in education, as allegory or pure imagination, for the sake of the undoubted interest of children in it, the educator is following the lead of nature if he emphasises the human or real part of it, since that, as we have seen, will naturally be the part to predominate.

Notes on Speech Development. II.

By Margaret Drummond, M.A.

The vocabulary, which has been already referred to, was taken in the end of December, 1915, that is, when the child was thirty-one months old. Unfortunately the observers were not able to be with her constantly, so that many words certainly escaped notice; moreover, the period during which the observations were car-

ried on was rather a short one—six days only (29th December to 3rd January).

About a fortnight earlier a vocabulary had been taken in a much less systematic way. In this vocabulary I found one hundred and thirty-five words which did not occur in the second, and as nearly all these words were recognised by the parents as freely used by the child, I have included them in the list given. One reason for the discrepancy is that many of these words belong to the Manchester environment—the home environment—whereas the second vocabulary was obtained in Edinburgh.

The method employed was to have note-book and pencil always ready, and write down the words as they were spoken, or very shortly afterwards. Sentences were often recorded, and this was the best plan; otherwise one sometimes was in doubt as to the part of speech represented by the word. By asking for the names of objects and by the use of picture books we endeavoured to get as many words as possible. This method to some extent overreached itself, for it tired the child, and at least on one day Margaret sought refuge in "I don't know," when asked what she called perfectly familiar objects. The expression on her face suggested that this was partly a joke on her part or mere laziness, but it is of course, quite possible that a child might use a word freely when required by her own needs, and yet not be able to give it at a moment when she had no particular interest in it. The vocabulary follows—

Nouns: Apple, apron, arm, auntie, baba, baby, bacon, bag, bagpipes, baking-board, ball, barrow, basin, basket, bath, bathroom, beads, beard, beastie, beaver, bed, bedtime, bee, bell, belt, bicycle, birdie, biscuits, bit, "bity-beast," blanket, blinds, blouse, boat, bones, bonnet, book, boots, bow-wow, box, boy, bracelet, bread, breeks, bricks, brush, bubbles, bugle, butter, butterfly, buttons, cakies, camel, card, carpet, cellar, chain, chair, cheek, chin, Christmas-father, circle, claws, clip, cloak, clock, coals, coat, cocks, cocoa, coffee, collar, colour, comb, combinations, cork, cot, cotton, cousin, cow, creeper, "creepie-crawlers," crumbs, crust, cubes, cup, cupboard, curls, currant, curtains, cushion, custard, daisies, darling, dimples, dining-room, dinner and dindin, dish, dog, dolly, donkey, door, drawer, dress, dressing-gown, drink, drum, duck, duster, ear, edge, egg, eiderdown, elbow, elephant, envelope, eyes, eyebrow, face, father, feather, feeder, feet, fender, fingers, fire, fists, flag, floor, flour, flower, fog, foot, forehead, fox, frog, gaiters, games, garden, gate, gee-gee, girl, glass, glasses (eye-), go-cart, gran'pa, gran'ma, grass, gravy, ground, hair, hair-pin, hand, "hanky," hat, head, heel, hens, hiccough, hole, honey, hood, horns, house, "hushie," ink, iron, jam, jelly, jug, juice, kangaroo, kettle, key, "kiltie," kind, kiss, kitchen, kitten, knees, knife, ladder, ladle, lady, lamb, leaves, leg, letter, lid, light, line, lion, liquorice-powder, looking-glass, lot, lovey, machine, mamma, man, marmalade, match, meat, medicine, men, milk, mince, minute, mischief, monkey, monkey-soap, moo-cow, moon, morning, mother, motor-car, mouth, mousie, mud, nails, name, napkin, napkin-ring, neck, newspaper, night, "nighty-gown," noise, nose, nurse, nursery, orange, owl, pages, paper parcel, park, parsley, peacock, pen, pencil, penny, people, pepper, person, petticoat, photograph, picture, pie, pieces, plate, pocket, poker, polar-bear, pond, porcupine, porridge, postcard, pot (po)-tato, pram, prunes, pudding, pussy, puss-cat, rabbit, rack, rain, rattle, red-breast, reel, reindeer, ribbon, rice, ride, ring, robin, rolling-pin, room, row, rug, sailor-boy, safety-pin, sago, salt, saucer, school, scissors, scone, scout, shadow, shawl, shirt, shoes, shop, shoulder, skin, sky, sleeve, slippers, snow, soap, socks, soda, sofa, soldiermen, sort, soup, spade, spectacles, sponge, spoon, spot, "spotty-pudding," square, squirrel, stair, stalk, stamp, star, starch, "staystays," steam, sticking-plaster, stockings, stool, storm, strap, strawberry-jam, stuff, sugar, supper, swan, swim, table, tablecloth, tail, tap, tape, tape-measure, tartans, tea,

teeth, teapot, tear, teaspoon, thimble, thing, thumbkin, thread, tick-tick, tiger, time, toast, tongue, toothbrush, to-toes, towel, tower, train, tray, tree, triangle, trousers, "tummy," tumbler, "tune" (piano), umbrella, uncle, university, "walky-tata," wall, watch, water, way, wheel, whiskers, wind, window, wolf, wool, words, work, world, wrist, zebra. No count was kept of proper nouns.

Verbs: Allowed, am, are, asking, be, behave, blow, break, bring, build, burn, button, buy, call, can, can't, carry, catch, caught, climb, come, cough, cry, cuddling, curling-up, cut, dancing, did, does, don't, draw, drink, drop, dust, eat, eaten, escape, "falled," fasten, feeding, feeling, find, finished, flying, floats, frightened, get, give, got, gone, happen, having, help, hide, hit, hold, hook, hurt, iron, jump, keep, kick, kiss, kneeling, knit, knock, know, laugh, leave, let, licked, lie, lift, like, live, look, lost, love, making, mean, mix, need, open, pat, picking up, playing, please, poke, pop, pour, pull, push, put, reading, ring, rubbing, running, resting, says, scratching, see, sew, shade, should, show, shut, slap, slip, smell, sneezing, spill, spreading-out, stand, steal, sticking, stir, stopped, swim, splash, take, talk, tasting, tear, tell, thank, "thoughted," tickle, tie, took, touch, try, tumble, turn, unbutton, untie, using, waiting, wake up, walking, want, warm, was, wash, watch, water, will, wipe, wonder, won't, wriggle, writing.

Adjectives: A, able, all, angry, ba (bad), bald, big, black, blind, blue, bottom, bright, broken, brown, buckled, bu'ful, busy, buzzy, careful, clean, cold, coloured, cool, crumpled up, curly, dark, dear, dirty, done, dreadful, dry, flannel, four, funny, gone, good, great, green, grey, heavy, hot, kind, left, little, messy, more, naked, naughty, new, nice, pink, pretty, purple, quiet, red, right, scrambled, silk, smaller, some, sore, sorry, steep, stewed, stiff, such, sure, that, this, three, top, two, vet (vexed), warm, wee, wet, white.

Pronouns: Another, anybody, both, he, her, herself, I, it, me, my, nothing, one, other, self, something, own, that, this, what, which, who, whose, you, you (your).

Adverbs: About, along, again, a little, any, asleep, awake, away, awful, back, backways, better, by, down, enough, forward, here, how, in, inside, just, last night, near, now, not, off, on, only, out, out of reach, outside, over, over there, past, perhaps, pretty, quite, right, round, some, soon, steady, still, that way, there, then, tight, through, to-day, together, tomorrow, too, up, upside down, upstairs, very, well, what for, where, wide, wrong, yet.

Prepositions: After, at, (be)side, between, by, for, from, in, like, next, of, on, over, to, till, up, under, with.

Conjunctions, and unclassified words and phrases: And, bun (bang), case (in case), good-bye, good morning, good night, no, oh, yes.

Comments on the Vocabulary. Words are recorded as they occurred; hence the frequency of present participles, for example, among the verbs. Regular verbs were at this time correctly inflected. When two or more different forms of an irregular one were employed, each form was counted, as get and got, am and was. Proper nouns were not noted.

The child was, of course, adding to her stock of words while the investigation was going on, but we intentionally refrained from teaching her new words; and words believed to be new were counted only if they were used spontaneously at least twelve hours after being heard.

A few of the words represent Edinburgh conditions, and it may be doubted how far these were fixed in the permanent vocabulary. Any evidence we obtained seemed to indicate that the verbal memory is good. Thus "sticking-plaster" was an Edinburgh word. I had cut my finger slightly and had occasion to put on a little piece. Margaret was much interested, as she always is in anything which seems to demand sympathy. But the episode was a brief one, and soon passed from our thoughts. On the seventh of April, that is, three months later, I was playing with her in the Manchester garden, when she

suddenly demanded, "Is the sticky paper off your hand?" "What sticky paper?' I said; "there wasn't any on." "Yes, in Edinburgh there was." "No, what do you mean?" A great effort on her part; then, "The plaster-stick. Is the plaster-stick off your hand? Is your finger better?" It was only then that I remembered to what she referred. I do not know what roused the sleeping memory in her. I think it must have been some passing glimpse of my finger.

Little attempt has been made in the vocabulary to indicate pronunciation. This was still imperfect in many words, yet the speech as a whole was distinct and quickly understood, even by strangers. Not many "baby words" were used. Her own word for pencil, "oo," does not appear in the vocabulary, and was even then dropping out of use. Yet I heard it as late as the following March (thirty-fourth month).

The following table shows the relation of the numbers of the different parts of speech to one another and to the whole vocabulary. The other columns are given for purposes of comparison. H. is a son of Dr. Drever, Jane a daughter of Mr. W. G. Bateman.

	H., 28 months.		M., 31 months.		H., 34 months.		J., 36 months.	
	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.
Nouns (Common)	172	49.8	385	50.3	377	54.3	399	54.07
,, (Proper)	4	...	not noted		14	...	not noted	
Verbs	80	23.2	151	20.8	148	21.3	164	22.22
Adjectives	44	12.8	77	10.6	89	12.8	75	10.16
Pronouns	11	3.2	24	3.3	23	3.3	21	2.84
Adverbs	17	4.9	62	8.5			52	7.05
Prepositions	8	2.3	18	2.5			13	1.76
Conjunctions	2	.6	2	.27	43	6.2	2	.27
Interjections							12	1.63
Unclassified	7	2	7	.96			0	
Total	345		726		694		738	

This table suggests that Margaret's linguistic powers were good for her age, slow as she had been in her early speech development. A noteworthy point is the great number of adverbs. Mr. Bateman says of his little girl's vocabulary that the verbs and adverbs form a larger part of the whole than found with any other child or group of children yet reported. Margaret's verbs are fewer, but she has more adverbs.

The child certainly picked up words easily. One was often reminded of words and expressions one had casually used to her by her repetition of them a day or so afterwards in the same circumstances. Thus one morning (thirty-fourth month) she was sitting on my knee, and as I rearranged her I said, "Turn your legs in this other direction." Next morning, as she climbed on my knee, she enquired, "Do you want my legs in the other—d-d-dection?" I have notes of one or two similar instances.

On the other hand, it was not particularly easy to *teach* her a new word. Like all children, she progresses best on the lines dictated by her own interests.

Her use of words followed very closely the practice of those about her. I have very few records of original expressions. "Unpush me" was a somewhat ingenious way of asking to have her chair pushed back. "It's Margaret Anne name" (thirty-fifth month) was the method adopted to give the idea embodied in Christian name or possibly proper name. In the thirty-second month it seemed almost as if she thought everything should have a name of its own. Often she would ask, "What's that?" and after being told would persist "What's its name?"

The order of words in her sentences, as already remarked, was often unusual. It

was difficult to obtain adequate records of this, for one never knew when examples would occur, and one forgot them so immediately. The following will serve to show what is meant. : "The bicycle is going on the walkside" (side-walk), thirty-fourth month; "I've eatened all up the crumbs," thirty-fourth month; "Better not I put on my creepie-crawlers if I go in the garden," thirty-fifth month.

Early in the thirty-fifth month I tried her with the opposites test. I did not expect success, as in the only parallel case that has, so far as I am aware, been published, the desired answers were not obtained till the child was some months older than Margaret. The exact method of experiment was as follows. I began: "Baby, I say 'short.' What do you say?" Naturally I got no response; so I continued, "You say, 'long.' Now I say 'big.' What do you say?" A pause, during which the child's mother replied, "Little." I went on, "I say 'short.' What do you say?" This time M. herself responded "Long." She then gave me "white" in response to "black, and "naughty" in response to "good." She thus showed she had made the abstraction required. She had not, however, clearly grasped the positive character of an opposite, for in response to "tall" and "laugh" she gave me "not tall" and "not laugh" respectively.

This last record bears upon general mental development rather than upon language development, yet the two lines of growth are in normal children so bound up with one another that it seems not out of place to mention it here.

From this study certain points of general interest emerge.

The use of language proper is often preceded by a period of "parrot-talk," or mere imitation of sounds. No such preliminary stage was observed here, nor has there been any time, as there is in the case of so many children, when words have been practised simply as sounds. Words have always been used with meaning except possibly certain words occurring in nursery rhymes, which M. would occasionally be heard repeating. Even here I feel no hesitation in saying that the general sense was appreciated.

The second stage in learning to speak is the association of definite sounds with definite objects. In M.'s case such associations were few and apparently not very readily made. Real language in her case seems to me to begin with the little sentences descriptive of her surroundings, of which some examples have been given. Nouns and verbs appear together, a few adjectives and adverbs at practically the same time, prepositions a few days later, and conjunctions and pronouns after a considerable interval. The record gives no support to the common belief that nouns are the first elements of language to appear.

For comparison with the material of this paper and for a fuller discussion of the problems presented by the subject, readers are referred to Dr. Drever's papers on "Children's Vocabularies" in the *Journal of Experimental Pedagogy*, 1915. Mr. Bateman's paper, to which reference has also been made, will be found in the *Journal of Educational Psychology*, October, 1915.

The Freedom of the Child in the Montessori School.

By Claude A. Claremont, B.Sc.,

Corporal, Tyne E.E., R.E.

(Montessori Diploma, 1913; Interpreter to Dr. Montessori in her Second International Training Course, 1914).

In speaking of the freedom of the child under the Montessori system one is continually met by the objection, "But the children are not really free if they are restricted to the Montessori apparatus, which they are obliged to use in a particular way."

Now, in her lectures to her students, Dr. Montessori has dealt with this criticism in a very intelligible and, as it seems to me, reasonable way.

I went to Rome myself, an enthusiastic believer in many of the modern ideas regarding imagination, the importance of play, stories, and so on, which govern the advanced Kindergarten of to-day, and the sharp divergence of Dr. Montessori's views from which has arisen so much antagonism to her method.

But I was met by a detailed development of theory, a volume of original and logical thought, far more fundamental and significant than I had ever expected. In company with my fellow-students, educationalists from all parts of the world, I found myself led by Dr. Montessori's luminous gift of exposition, almost irresistibly from point to point in her argument. I had the impression of beholding an explorer unroll a vast map of new and uncharted territory, pointing out this, that, and the other original discovery to a startled and enthralled audience. Few members of the course, I am certain, left Rome without the conviction that Dr. Montessori is making a many-sided contribution to education of considerably more solid foundation and greater completeness than is generally realised. Many, too, felt that, for themselves at least, the future for the time being must lie in study and verification; and that the time for criticism was not yet.

In regard to the above-mentioned criticism, her standpoint is, firstly, that it is not she who has selected the material and condemned the children to its use. It is rather they who have rejected other articles. "It is not I who banished toys," she once said. "I at first believed in toys, but the children ceased to use them." The apparatus owes its present form to a long series of experiments, in which Dr. Montessori took as her guide a marked concentration of attention—a "polarisation" of interest and energy absorbing the child's whole personality. She noticed one day a little girl using the cylinders. So engrossed was she that nothing could disturb her. Although Dr. Montessori placed her, chair and all, bodily on the table, bidding the other children to sing and dance, she still continued her work until, after taking out and replacing the cylinders some forty times, she stopped of her own accord with a deep sigh of satisfaction, "almost as of one awakening from a sound sleep."

"The observation," she says, "struck me almost as a discovery, since I, at that time, in common with my contemporaries, believed that the child's attention was fleeting and unstable." But the phenomenon, she adds, afterwards became very common among the children; and by experiment with suitable material, by modification and rejection, she was able to extend it to all the other articles of which her apparatus is now composed.

Now the rule that the material should not be used for other purposes than those intended, is not to be applied unintelligently. It is, the Dottoressa explained, rather a guide which the teacher should have in mind—in reality, a *sense of order*. "One does not use the clothes brush for one's hair," the Dottoressa said to me, in reply to a query of my own on this point. "Why, for instance, not let them play trains with the dinner service?" Similarly, sensory apparatus should be used for sense education, the frames for buttoning, and so on. It is part of our duty as educators to give the children a sense of the proper use and place of all the things in their environment.

With this attitude, I think most practical educators will be prepared to agree. Hence the question devolves purely upon the point as to whether the apparatus is truly sufficient for the child's life.

Let me remark here that Dr. Montessori has never claimed that it is so. Her contention is, merely, that it suffices and fulfils its purpose for the child's intellectual life, and for his formal training. But she would be the first to deny that this is his whole life, and she insists most strongly upon the importance of environment, and the value of natural and human influences.

The ideal Montessori school would consist of several rooms adjoining the large "working-room," namely, a gymnasium, dining-room, and parlour, or recreation-room (containing a piano, picture books,

puzzles, games, etc.), and a rest-room with couches or beds. All these should be tastefully decorated and adorned with the best pictures, statuettes, attractive ornaments, etc., while "flowers should never be far distant from the growing child." The whole should adjoin a garden, beautifully laid out, and in this may be kept pets; flowers may be cultivated and grown from seed; there may be a fish-pond, or even a small enclosure for larger animals, such as a calf, lamb, or goat.

Freedom amidst the "best conditions of life" is the Montessori formula; and in such an atmosphere there would seem to be small danger of "limitation to the apparatus."

The latter, in truth, is present rather as an introduction, or aid, towards a more perfect comprehension and grasp of the environment, and it helps in a direct way the unfolding of the child's life. But it should certainly be forsaken from the moment that its purpose is accomplished. And, indeed, one of Dr. Montessori's arguments for a *limitation* of the material which should be presented to the child, is that a great multiplication of objects tends to enchain a spirit which would otherwise escape to the wider world.

The Kindergartner points to the absence of plastic material, such as sand, clay, bricks—means, that is, of self-expression. The enquiry of a learned educational body broke down upon the lack of organised games. But Dr. Montessori has never banned the former, nor are the children entirely deprived of the latter. It is merely their place and relative importance in the school that has been changed. Plastic material, the Dottoressa thinks, is of small educational value for the younger children; and for this there is a reason; but clay modelling, building with bricks, and paper cutting are among the later occupations mentioned in her book. Games hold the place to which the children have relegated them.

Before passing to the theoretical discussion of these questions, let me pause to note that they are fundamentally matters of fact, and therefore to be decided by experiment. It is for the English teacher, trying the method, to tell us whether Dr. Montessori's results hold good, just as the scientist's discovery has to be tested by his contemporaries. But a warning must be added, since considerable technique is undoubtedly necessary for the proper application of the method, and results obtained by a teacher insufficiently prepared may therefore be unreliable.

But much may be said for Dr. Montessori's view on theoretical grounds. In regard to constructive work, she stipulates that the aim of education should be to enable the children, when they construct, to construct well. That is, the things they make should be as like as possible to the objects they represent. And she regards her apparatus, together with the many activities of practical life which the school offers, as providing the most direct path towards this end.

Let us consider, for a moment, what—in the physiological sense—comprises an educational activity. The following definition, though not put forward with any claim to completeness, may serve our present purpose. An educational activity is one tending in special degree to perfect the individual. Apply this to the realm of movement. Activities are educational which tend either to strengthen the muscles or to improve co-ordination. Of these the latter is incomparably the more important. Man, in relation to the beasts, was not made to be strong, but to have an immense and infinitely complex variety of co-ordinated movements. But what is an exercise tending to improve co-ordination?

If the question be considered carefully, I believe that the kernel of the educational process will be found to lie in an effort to move accurately, or in a particular way. For instance, a child carrying a glass of water across the room with strained attention and care not to spill it, performs a more real "education of the movements" than one merely lying on the hearthrug, kicking his heels in the air. A fretful child, pettishly flinging his toys about, makes chaotic movements, as to the direction and force of which he is alike indiffer-

ent. His movements must be less educational than those of a child carefully fitting the insets into their places. In games of skill, it is the *effort to be accurate* that produces greater accuracy. In billiards, golf, tennis, etc., the player who improves is perpetually attempting more difficult 'shots' than those of which he is already the master.

Dancing is an educational exercise, because it aims at a particular kind of accuracy—grace or beauty. In this, indeed, we may perhaps find the scientific explanation of the added poise and security in walking, which Montessori children acquire from the exercise of "marching on the line." Here, for a short time, they pay special attention to restraining their movements within finer limits than those of ordinary walking. The result is a gain of ease.

Instances may be multiplied. We have arrived, to-day, in our educational theory, at saying, "The child must move." But the idea evidently needs extension. Some movements are educational in the first degree, some are less so, and some have value only in being better than immobility.

A theory involving these differences would be, in reality, a contribution to physiological pyschology. Indeed the psychologist might find it of interest to determine whether or not conscious effort —a phenomenon of the attention—lies really at the root of the problem.

In the Montessori school, the exercises of the children are almost entirely endowed with the quality we have just described. They involve, that is, purposive effort to make movements in a precise way. This is a virtue of the exercises of practical life, such as dusting, sweeping, washing-up, laying the table. It applies to the use of the frames, dressing, personal attention, etc. And it informs most evidently the remainder of the apparatus.

We might compare these occupations with digging in sand, clay-modelling, building with bricks, etc. It is a question whether the child, at the early age at which he does not even distinguish a square from a triangle, and fumbles with them futilely over the wrong apertures, can observe sufficiently to make his creations with these materials purposive, and therefore educational. Haphazard heaping of sand, or rolling of clay, is not educational in the highest sense. It involves no specific aim. To the child one result is as good as another. Plastic materials become educational only when the child can copy, compare his work with some real (or imagined) object, and thus correct himself, taking pains to produce a particular result. This corresponds with Dr. Montessori's principle that when the child constructs, he should construct well, and with her practice in presenting plastic material only at the age when the child has already gained control of his muscles, and become an observer of his environment.

Her aim throughout is to prepare the child to express himself by, or before, the age at which he has ideas to express. By the time he has ideas to write, he should be able to write. When he wishes to construct, he should already have the power over his fingers, and the ability to see, which construction needs. By the time that he has mental pictures to draw, he should be master of his pencil. "I should be sorry," she once said to her students, "if my own mental contents were to be judged by the drawings I could make of them." But whatever the state of his ideas, the task of education is to lead the child to the conquest of these material powers by the easiest and most direct route. By so doing, we set his spirit free.

A most interesting application of the idea of effortful control as the educational factor in movement occurs in the controversy with regard to free-drawing. The Montessori geometric insets are criticised by those of the "self-expression" school in art teaching, on the ground that they are too mechanical. But in reality they lead the child more directly to self-expression, since they give him the control of his instrument and the critical faculty which enable him to draw well.

The child who draws "freely" at too early an age is unable to compare his work with any external object (real or imagined). He therefore lacks the element of correc-

tion which would lead him to rectify his errors, and make efforts to be accurate. The scribble, or uncouth representations he makes, may, it is true, be self-expressive, and have some motor value, but they are not in the highest degree educational in the motor sense and do not lead the child by the quickest route to the acquisition of control. Meanwhile he becomes accustomed to seeing ugly things instead of beautiful, and this might be criticised in the name of æsthetic education.

Such a child is rather like one who bangs aimlessly up and down the piano. We might say, the child "has music in his head, which he wishes to express." But all know that the only path to the heights of musical execution is the narrow one of the "limited exercise," in which efforts are made to control the movements, keeping them within defined limits, increasing always in refinement and complication.

It is some exercise, in fact, corresponding to the early drill in music, that Dr. Montessori wishes to introduce in drawing. As a preparation for free-drawing, for drawing from still life or nature, she provides the child with an apparatus giving him a mechanical guide, since he lacks the natural one. Using at first one of a set of simple geometrical insets as a stencil, he delineates a figure on his paper in coloured chalk. This he proceeds to fill in, also with coloured chalk. Proficient in this exercise, he passes to more complex patterns, and thence to a series of classical designs, a large number of which Dr. Montessori has collected and had printed in outline upon slips of paper.

Whatever the differences of opinion in regard to other matters, I think no teacher who has tried the method doubts the attraction of this exercise. Scribbling awkwardly in its centre at first, the children rapidly come to respect the outlines of the figure they are shading, and the little parallel strokes with which they fill it in gradually become more even and light, tending to stray less and less over the edge. So popular indeed is this game, that some directresses even make a practice of restricting the time for it to a particular period of the day. The exercise is easy, and may be used as a rest for the children.

This does not mean that free-drawing must be banned. In a free school it can go on simultaneously, and the teacher is not meant to hinder it. But the exercise involving control will lead the child more quickly to mechanical perfection, and indeed it produces an astonishing delicacy of touch. Many different-coloured chalks being provided, the child acquires, further, a refined sense of harmony and shade in the choice of colour, this no doubt being aided by his games with the colour tablets. By the time, therefore, that he reaches the age of being really able to observe, to image clearly, and to depict objects, he is already provided with exquisite physical power to carry out his wish.

At this stage control of the eye comes in, and the artificial help may be left behind. It is just as with other parts of this apparatus. The cylinders give way to the rods, the tower, and broad stair; the geometric insets to the cards. The control of the eye is substituted for the mechanical guidance of a piece of wood.

If we can say with Bergson, that joy is an infallible sign of the "triumph of life," then, watching these little ones at work, one cannot help feeling that their education is truly on the right lines. Their joy and enthusiasm are too unmistakable. Such children are not less free, but more free, since there lies open to them an unlimited path of self-perfection, a straightened highway towards the realisation of their inheritance.

In this light, also, I think we gain some illumination upon the position of games in the school. "The children do not play," says the Dottoressa. And I can understand her meaning. But this is not strictly accurate since, in recreation time, I have seen games both played and enjoyed by the children. We have to remember, I think, that there are games and games: some contain an educational element, leaving the individual richer than before, while others are merely amusing. Not that one

wishes to condemn the sheer ebullition of good spirits and fun, as natural to healthy humanity as the sparkle to flowing water, but as educators it is necessary to distinguish the vital from the indifferent, or we may find ourselves venerating a mistaken god.

Games in the Montessori school have taken on, as it seems to me, a subservient position, similar almost to that which they hold among adults—helpful and restful as an adjunct to life, but not life itself, nor one of its indispensable components.

It may be of interest to many if I add that in her recent training course upon her methods for older children, held at Barcelona, Dr. Montessori included fairy tales—all that "ancient heritage of literature," in fact—provided they are given at an age at which the child understands them as literature, and is not misled by them as to fact.

Finally, Dr. Montessori has no wish to forbid any of the activities with which I have dealt. It is important to remember, merely, that the pedagogical act is to place the child upon the path which leads to his true development, thereafter leaving him free in its pursuit. The directress should have a clear knowledge of those activities which are truly educational, those which are less so, and those which are merely diverting, or have value only in a minor degree. Then, when she really wishes to give the child a guidance, she will not place him upon a false or indirect path.

Parent Educators.

By Professor Bidart.

Translated by Miss M. S. Ryan, B.A.

2. *Prevent children from doing things to annoy one another.* In some families the elder children are allowed to exercise some sort of authority over the others. This disturbs the younger children's notions of equality and justice. "Why should he order us about?" they think. Moreover it is bad for the elder child; he is apt to think himself better than the others. In other families the contrary prevails; the elder children are sacrificed to the younger on the pretext that they are more grown-up and therefore reasonable. Parents seem to think that the elder children exist to amuse the others, who in their turn become selfish and exacting.

Let there be justice for all. No child need be a victim, and no child may be a tyrant. Do not permit tale-bearing, threats or bullying. "Tommy spoilt this" or "Tommy broke that," etc. You must not permit such tales. It is for the elder ones to look after and help the others, not to tell tales about them or attempt to tyrannise over them. Do not let them tease one another. Put a stop to childish pranks, such as pulling the hair, pushing and fighting... They must not jeer at another's defects—"Lily cannot say *r*," "Billy's nose is crooked," "You've had a scolding, Papa scolded you," "*You* got into trouble this time, eh?" etc.

3. *When a new baby arrives, be careful to forestall any jealousy.* The first thing is to tell the children about it quietly beforehand. Do not say, "Soon, little Miss Important, there will be somebody else for mother to love and to kiss," "Mother will have somebody else to nurse presently"—stupid remarks which make a child detest the poor little innocent before he arrives; but say, "You are going to have a little brother all to yourself, a dear little baby to love and play with; won't that be nice?"

Another danger is, when the new baby has come, that he may seem, not a plaything, but a rival. The elder child will naturally cease to be the only object of the parents affection.

"The new arrival is the one to be nursed. The other child often has to stand aside while the mother is busy about the little helpless baby, and he has to watch her talking and playing with the baby, whereas formerly she only talked and played with him. Then presently he will find himself thwarted and scolded in a degree hitherto unknown to him, and he will be gradually deprived of part of his liberty all for the sake of the little one who has usurped part of the attentions

previously given only to him. If he makes a disturbance when his little brother is asleep, he will get into trouble. Suppose the baby is playing with his toys, he will not be able to take them away. Should he touch the baby, he will be told that he makes him cry, and if the baby strikes out at him he will not be allowed to retaliate. In the end the child gets hurt and miserable, and thinks himself rebuffed or not wanted, nor does he understand that he may have deserved the treatment" (*Mme. Guizot*).

What are we to do? Give him plenty to do with his little brother. Cultivate his love for the baby, and thus avoid dislike. You can only overcome evil by good. Show the child who is jealous that you love him just as much as the others; that it would be mean for him to wish to have all the love for himself. Lastly, as he grows older, appeal to his sense of justice. Say to him, "See, Charlie isn't mean and selfish like you. You must be above such miserable conduct if you want to be able to respect yourself and to be a man."

4. *If jealousy has already arisen, stamp it out at once* (that is, supposing that the above recommendations have not been followed or have not succeeded). The treatment must always be active. Make the jealous child share in the other's pleasures, and thus the other will never have any occasion to triumph. If a child is jealous because he feels himself inferior to the other, encourage him thus: "You are very strong, you can lift this or that," or "You can always learn your lessons quickly," "There is no need for you to be jealous of your brother because he can run faster than you or because he can sing nicely," etc., or again, "You can try for the best thing of all, then everyone will love you; be the most just." One thing we must always guard against: never humiliate a jealous child. Wounded jealousy becomes a fierce and incurable passion.

5. *Directly cultivate fraternal affection.* Let the elder child take care of the younger from the cradle. Later on make him take his part in the games and amusements, the pleasures, and the disappointments of the younger ones. Later still, as your sons begin to establish themselves in life, deal justly with all, and make equal settlements upon them all, always excepting, however, the case when one of them has received a special education. He ought then of his own accord renounce part of his inheritance so as to make compensation to the others, and the father should keep him to this. Lastly, appeal to reason thus: "You are all our children, all equally loved, all born from the same parents. You all deserve the same fortune; it is therefore right that those of you who are successful should come to the help of the less fortunate among you. You must all help one another as brothers should."

The Conflicts in the Unconscious of the Child. II.

By Dr. Eder and Edith Eder.

Turning now to the child's emotional relations to the members of his family, his mingled love and resentment towards them, displayed especially towards a new baby, play a very striking part. And this because the child has to find the world is not his exclusive property, that world which at first is made up almost exclusively of mother or nurse. To this struggle one may attribute the fits of angry crying about the end of the third year, apt to surprise the guardians of children hitherto docile and content. They denote the child's protest in the face of deprivation of certain attentions, a phase which normally soon disappears as his growing intelligence and activities make the external world a very agreeable spot to dwell in after all.

Jealousy is at first often openly expressed: a boy of two on being shown the new-born brother said with every mark of anger, "You *like* dat fing? Put dat fing away and play with me." Though by degrees he grew to like the baby and play with it, as late as four there

would be occasional open outbursts of jealousy, especially when he was not well and desired a return from a very active, independent career to the cuddling of his mother, with such phrases as, "He's a great nuisance to us—never can walk anywhere—get aunty to buy him." Still later, all open signs of jealousy had vanished, but its latent force was evident in complaints of the mother's "injustice": "You always favour Harry; you're unfair." In some cases the moral sense is early aroused, repression and disguise occurring, as in the child between five and six who passionately loved a much older brother. Jealous of his companionship with the older brothers and sisters, she had a constantly recurring dream that all the others save the beloved brother were only her *cousins*. She and this brother lived in a house "right at the other end of our road, so's it took quite half an hour to get to *this* house." By turning the other brothers and sisters into cousins she removed them from the immediate family circle, she got the dear brother to herself—since you love your own family more than you do cousins—she secured the large share of love she desired, and the separating of the two houses by half an hour is a reiteration of the same intention, to push away all competitors and secure all the love for herself.

The very usual unwillingness of the child to grow up arises out of the necessity of separating himself from the warm mother-love and adapting himself to a new situation of greater independence, the forward urge conflicting with the easier delights of the present. The attraction that all the very tiny inhabitants of the fairy-world—the elves, dwarfs, gnomes—have for many children, and such stories as "Rumpelstiltskin," where the "little man" plays the magic part, bear witness to this unwillingness. A dream of a boy between nine and ten runs: "I was in the Isle of Wight and climbed up a rock and saw the entrance into the cave. It's too small to get through really, but I somehow was very little and I crawled through it, and at the end I came out in a country all castles and craggy rocks, and you were there. H. (his elder brother) wasn't." The associations made clear his desire to be little again. He had been then so much more with his mother. He had been having a rather lonely time among older boys and felt his inferiority. If he were a baby he could get back to the warm shelter. The strange castled land came from tales of Charlemagne's knights which he had lately read and loved. He said he "wanted to be a *page* in those times; no, not a knight, a page, and look after the hawks for the lady of the castle." So the wish he was ashamed, as a "big boy," to admit undisguised gets fulfilled—to get back to his mother, to be rid of the older brother, and at the same time to enjoy the romance of the knightly times which was kindling his imagination.

The attitude towards the parents is above all most significant for after-development. It is understandable that the girl normally loves her father best, the boy his mother, the Electra and Œdipus complexes as Freud terms them. Jealousy of the other parent is an accompanying emotion. This is very often apparent in the early years, but gradually concealed when this comes into conflict with a growing altruism, and must be sternly repressed from consciousness. In the relation to the parents is bound up the whole question of parental authority. The so many necessary "dont's" in child-life, quite apart from those unnecessary, make a strong reason for rebellion and annoyance in both conscious and unconscious spheres. In the girl's dream given by Prof. Boyd ("Child-Study, November, 1915), "I dreamt that I had got another father; that was why I cried"; "I dreamed that my father had gone away, and that I had got another father," he overlooks this aspect. There are countless occasions when the little girl is at odds with authority as represented by the father, and will wish him away or "dead." This is no more a contradiction of the "Electra complex" than the statement of the ascent of a balloon is a contradiction of the law of gravity.

A girl between ten and eleven said, "I often used to dream mother wasn't my real mother; she was my step-mother. I didn't seem to know about my real mother." The associations brought up the well-known fairy tale of "Little Snow White," where the step-mother is openly the competitor of the daughter. This step-mother device, the *motif* of countless fairy tales, thus enables the dreamer to hate her mother (in certain aspects) with a clear conscience, as it were.

The boy, loving his mother, will constantly have fear of his father because instinctively he knows he has no right to sole possession of his mother, for whom he has at the same time reverence and affection. Thus a boy between eight and ten frequently dreamt in slightly varying forms of a queer great he-wolf that pursued him, when he was always saved by a she-beast. The descriptions of the beasts led directly to father and mother, and here we have a typical case of the unconscious in direct opposition to the conscious. The father here was by far the more indulgent parent of the two; consciously the boy had not the slightest fear of him. But he was, though unaware of it himself, quite clearly to observers, his mother's lover in so far as a child of this age can be, and was passionately jealous of her. His unconscious seems to admit the unsuitability of the situation, to inspire him with terror before the father, but also to gratify his desire to be with the mother.

Night-terrors, it will be found, are often used by a child as a means of securing his mother's presence or because there is jealousy, and the aim is to separate the parents. Such bad dreams often cease when the child finds the desire is not obtained. If, for instance, the mother does not go herself to the cot, but sends the nurse, or if the effective cause is removed by the temporary absence of one parent.

We have pointed out that the Œdipus-relation is not the only one that obtains in childhood, nor must it be regarded as being constantly operative. Side by side with such a *motif* in the unconscious there run all the other relationships of a child to its parents, the sharers of its daily joys and sorrows, the confidants of its ambitions, the ever-present helpers and protectors. Not fear, but intense desire to excel in manhood is the *motif* of the boy's dream (age twelve to thirteen) that he "possessed a pole long enough to reach to the clouds, which had a miraculous power of attracting from them some magic fluid, electricity or something like that, which would make me able to do all sorts of marvelious things, and make everything grow miraculously."

As regards the child's pre-occupation with the problems of birth, his invention of phantastic answers to the questions, "Where does baby come from?" "Could I have one?" "How does it come?" "What has father to do with it?" psycho-analytic experience is now sufficient to warrant our certainty that, however little of all this emerges into consciousness, practically no child escapes such questions in the unconscious. Personally we think they also play a far larger conscious part than is usually supposed, judging from the games children invent, the traditional ones they gladly play, and from much of the talk which is withheld from their elders. Here once more, adult preconceptions apart, it would be strange if so important, so mysterious an event were not the subject of liveliest curiosity; strange if he did not propound to himself solution after solution of the riddle, some highly individual, others strictly following the phantasies of his race in its earlier ignorance of the real facts.

Thus we come to look at childhood as a period of unending change, of mental strife. There is an unceasing conflict between the aspirations towards the new positions whither the child is borne by an inner compulsion, voiced though it may be by its environment, and the child's desire to remain quiescent with the happiness of the past and present.

The acceptance of the view here indicated means the surrender of the picture of childhood as the period of delightful ignor-

ance and innocence; the trailing clouds of glory disappear, as has already largely disappeared the romantic view of the innocent nice savage beloved of Rousseau. For the child we return to the classic tradition. In compensation we can offer again the classical view of a gradual growth from within, of a pushing forward from blind impulse towards a conscious and purposeful ideal.

It will be seen that we have no easy panacea to offer. We do not believe that sexual enlightenment in the schools can work other than ill; all belief in the value of such cheap and simple measures, of the rationalistic explanations of emotions that lie at the foundation of life springs from a lazy optimism glad to think ills are easily curable and demand no vigorous effort.

"What we can do is to arrange matters so as to give virtue her best chance," says Edward Bowen. We can remove obstructions to growth; we can place within the child's easy reach the various means by which it can symbolise his next prospective step. Thus in the case mentioned on p. 80 we should see that the child had rich opportunity for play with earth, water, plasticine, sand, for gardening, building; there should be no adult restriction on these or the more primitive activity, the adult's share should be limited to showing (by example, not words) what attractive objects can be produced from these materials of a later age. The adult is required to furnish just enough stimulus for the child's growth and no more. The stimulus must be adapted to the child's idiosyncrasies; there must be all kinds of materials at hand. One child will skip over several of our theoretical "stages of childhood," and another will linger long at some one stage.

Though the adult is not required to furnish new standards for the child by any direct attempts, this does not exclude the possibility of the child's discovering higher standards through companionship and contact with his elders. We do not forget that this world belongs to the adult equally with the child, and it is in this companionship that certain new aspects of life will flash upon the child.

But nothing we have written here is to be regarded as meaning we have found all the clues to child-study and education. Psycho-analysis offers, we believe, for the investigation of child-life a method rich in the possibility of reaching depths hitherto untouched, and gaining knowledge yet undreamt of. It is then as a splendid exploratory enterprise that we commend psycho-analysis in child-study.

Notices and News.

That Mr. Holman should have resigned the editorship of *Child-Study* will be a matter of general regret to all who have known the Journal within recent years. To few does the Association owe more than to him; he has served it in many capacities from the earliest days, and in nothing more worthily than in his work as editor. What this means will be appreciated by all who know the constant demands upon time and thought such work implies, whilst the steady increase in public estimation that has characterised the Journal, both at home and abroad, is testimony to the confidence he has inspired. Thus, in accepting his resignation with great regret, the Executive Council placed on record also their high sense of appreciation of the services Mr. Holman has rendered to the Association during the seven years he has acted as Editor of *Child-Study*.

The Council of the Association met at London University on January 3rd, 1917, delegates from the Birmingham, Hartlepools, London, and Manchester Societies being present. Very encouraging reports were received of the work being done in these centres; in spite of adverse conditions courses of lectures are being arranged, creditable audiences are obtained, and the membership has not been seriously depleted. It was agreed to present a memorial to the Board of Education, based upon a memorandum drawn up by the London Society, and setting forth the steps that should be taken to achieve sound educational progress; to receive the resignation of the Editor with great regret, and for the period of the War to publish four issues of the Journal per annum in place of eight.

The Journal Committee greatly regret the unavoidable delay which has occurred in the publication of the November and December issues, which are herewith combined, and that, owing to exigencies of space, all reviews have to be held over till the next number. T.G.T.

PUBLICATIONS RECEIVED.—*Journal of Education; The Parents' Review; The Eugenics' Review; The Pedagogical Seminary* (U.S.A.); *Educational Review* (U.S.A.); *Journal of Educational Psychology* (U.S.A.); *Child-Life* (U.S.A.); *The Training School Bulletin* (U.S.A.); *School and Society* (U.S.A.); *The American Teacher* (U.S.A.).

Author Child-study P Bue. C.

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